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ART. I.—*Cases of Strangulated Hernia, with some remarks principally intended to show the necessity of an early resort to the operation.* By JOHN C. WARREN, M. D., Professor of Anatomy and Operative Surgery in Harvard University, Boston.

THE time, after strangulation, at which the operation for strangulated hernia should be performed, is not satisfactorily settled. Many practitioners, before resorting to it, employ various other measures, and frequently repeat them, until the patient's strength appears to be failing, and it becomes obvious he must perish unless relieved by the knife of the surgeon.

This was my own course, when I first began to operate for strangulated hernia in Boston, about the years 1803 and 1804. This operation had then never been performed here, so far as I can ascertain, or, at least, had never been successfully performed. Physicians were, therefore, at that time unwilling to advise an operation which appeared to them to be a novelty, and patients were slow in consenting to submit to it. The period of the operation was, for these reasons, in many instances, postponed too long, and notwithstanding the utmost efforts by taxis, a number of unsuccessful cases necessarily followed. Having noticed this, I endeavoured, from time to time, to impress on the minds of those with whom I had occasion to consult, the importance of an early resort to the operation. This doctrine has proved so successful here that most physicians in this place recommend the operation and most patients are now willing to submit to it, immediately after the common means have been found unavailing. The results of this change of practice are so successful, that, in my own experience, I am not able to discover more than a single instance of unfavourable termination within the last six years, and this took place in a man who was not operated on for more than three days after strangulation, whose case is alluded to hereafter.

In order to give some of the results of my experience as to the utility of

this practice, I have thought it might be useful to present the following cases. They may also do something towards the illustration of other points of hernial pathology and practice, especially these: first, the situation of the stricture, whether in the abdominal ring or the neck of the hernial sac; second, the simulation of strangulated hernia by peritoneal inflammation in the sac and its vicinity; third, the practicability and utility of dividing the stricture, and reducing the hernia without opening the hernial sac; fourth, the possibility of conducting the subsequent treatment, so as to give the patient some security against the return of the rupture after his recovery from the operation. I would have it understood, that it is not my intention to present a statistical record, but rather to bring forward a few cases in detail, calculated, so far as they go, to explain the manner in which I have treated this affection, and also to touch upon the points above mentioned.

The first case, which we shall now record, illustrates, firstly, the advantages of an early operation; secondly, the seat of the stricture; thirdly, the practicability of dividing the abdominal ring without opening the sac; fourthly, the practicability of returning the hernia without opening the sac.

Case I. *Strangulated Inguinal Hernia reduced by an operation without opening the hernial sac.*—A gentleman of Boston, aged 76, who had had a hernia for a great number of years, was attacked in June, 1824, with symptoms of strangulation. The hernia had been a reducible one, and had repeatedly been strangulated. The size of the tumour was large, being as much as seven inches long, and of proportionate diameter.

On the occurrence of strangulation at this time, the taxis having proved ineffectual, the patient took first a common injection, then a warm bath, and afterwards had leeches applied, followed by cold applications: the treatment of the day was concluded by putting him under a very large dose of opium. On the next day, the hernia continuing in the same state, pressure to reduce it was once more tried, and the patient placed in different positions to aid it. He now began to vomit, and was in considerable distress; I therefore determined to do the operation as soon as his consent could be obtained. The operation was performed thirty hours after strangulation.

An incision, four inches long, was carried from a point an inch above the abdominal ring to the upper part of the tumour; the external fascia was dissected, the tendon of the external oblique muscle exposed, and a small puncture being made in the fascia below the ring, the point of a director was passed into this passage, and the ring dilated without opening the sac. Pressure was now applied to the rupture, which seemed to consist principally of intestine, and the contents of the tumour were returned into the cavity of the abdomen. The wound was brought together, united by the first intention, and the patient was well in a few days.

He lived a number of years after, and had no further trouble with his rupture, although it continued to descend.

Case II. *Strangulated Crural Hernia; operation twenty-four hours after strangulation; discharges of blood from the wound eleven days after the operation; discharges of blood from the vagina twenty days after the operation: recovery.*—A lady, 82 years of age, subject for some years to crural hernia of the right side, was attacked, on the 17th of Nov., 1838, with symptoms of strangulation. She had pain in the tumour, a sense of stricture, as of a cord extending from the stomach to the right groin, vomiting and obstinate constipation.

Her physician, Dr. Homans, employed taxis, used active injections, which were returned with a small portion of fæces, and gave a purgative of castor oil, which was thrown off. Cold applications were then made to the tumour; these were continued from the evening of the 17th to that of the 18th, without effect. At this time I was desired to visit her in consultation.

I found the patient suffering considerable pain in the tumour, and in the abdomen generally; the latter was tender and somewhat swelled; the pulse was quick; she exhibited much restlessness and anxiety. Placing her on the right edge of her bed, the right knee being elevated and supported, I proceeded to make pressure on the tumour. This tumour was about three inches in diameter, situated at the upper and inner part of the thigh, principally below Poupart's ligament, though part of it rose above. It was tender, as before stated, and elastic, appearing to be composed mostly of intestine. The pressure was continued for some time, and varied as to its direction, so as to give every possible chance of reduction, if pressure could reduce it. After efforts continued for ten or fifteen minutes, I judged it to be impracticable to effect the reduction in this way, and advised an operation without further delay. This being agreed to, was immediately performed at 8 o'clock on the evening of the 10th of November, twenty-four hours after the attack, in company with Dr. Homans and Dr. Mason Warren.

The patient was placed, as before mentioned, on the right edge of the bed; an incision, three inches long, was made over the middle of the tumour. The coverings of the sac were very thin; the sac itself was exposed and opened in two or three minutes; the contents were found to be intestine with a small portion of omentum. The stricture being sought for, an obstacle to its discovery was found to exist in a portion of fascia, which covered over and extended on to the neck of the sac, probably the cribriform process of the fascia lata constituting a lower or outer ring. This fascia was divided by introducing the nail under its edge, and following the nail by the probe-pointed bistoury. The aperture of the upper or inner ring was then reached at the posterior and inferior edge of the oblique muscle, which was incised.*

* In the operation for crural hernia, I have almost always relieved the stricture by cutting the ligament of Gimbernat at the inner part of the sac; but in this case the stricture was more distinctly perceived at the anterior part of the neck of the sac; this part was, therefore, divided, instead of making a search for the ligament of Gimbernat.

The hernia was now readily returned, and immediately the motion of air through the intestines was heard. Two sutures were made in the integuments, and a bandage with compresses carefully applied. In twenty minutes the patient had an evacuation from the bowels. She passed a comfortable night, and on the following morning, took a cathartic of senna, which effectually relieved her.

The principal part of the wound united by the first intention; its inferior angle continued open. She had no unpleasant symptoms until the eleventh day after the operation, when a copious venous hemorrhage occurred from the lower part of the wound. Cold spirituous applications, with compression, were made over the wound, and the pulse not being accelerated, cordials were administered internally. After three days of hemorrhage and great consequent prostration of strength, the discharge ceased. After this she continued to convalesce till the 10th of December, when, without any precursory symptoms, she had a considerable flow of dark-coloured blood from the vagina, by which she was extremely prostrated. On examination, nothing extraordinary could be discovered in this part or in the uterus. Cold astringent injections were used, and she took astringents by the mouth. The hemorrhage ceased as suddenly as it appeared, and she had no recurrence of it.

From this time her recovery was regular, though she kept house through the winter. In the following summer I saw her walking in the street, and at this time, Oct., 1844, she still retains her health.

Case III. *Strangulated Inguinal Hernia; operation twenty-four hours after strangulation; stricture dilated by a small incision, and the hernia returned without opening the sac: recovery.*—Samuel Hoit, a sailor, single, 32 years of age, was admitted to the Massachusetts General Hospital, on April 10th, 1842, for strangulated inguinal hernia. The hernia had existed about fifteen months; it had occasionally descended, and been reduced without much difficulty; but about half-past four in the afternoon of April 9th, being in the cars coming from New Bedford to Boston, the hernia descended, and every effort at its reduction for eighteen hours having proved unsuccessful, he was taken to the hospital.

On examination, there appeared over Poupart's ligament a superficial excoriation, covering a space an inch and a half by an inch in extent, beneath which the skin and cellular substance were so hardened as to render it impossible to feel the external ring, the effect of a truss with a wooden pad, which he had recently worn. In the right side of the scrotum was a swelling about four inches long, compressible, not translucent, very tender.

Taxis was tried, but without effect; he was then placed in a bath as hot as he could bear it; in this situation he was bled twenty-four ounces; an enema of soap and water was afterwards administered. As these measures were not attended with success, the operation was agreed upon and per-

formed at half-past four in the afternoon, twenty-four hours after the strangulation, and six after his entrance to the hospital.

Much having been said about a subcutaneous operation for strangulated hernia, I thought it might be well to attempt it in this case. Accordingly a very small incision was made a little below the abdominal ring, of a size sufficient to admit a director. This being passed into the incision, preparatory to the use of the knife, an attempt was made to insinuate it from below upwards through the fascia into the abdominal ring; but I immediately perceived that the attainment of this object was not without difficulty and danger, as a very delicate movement of the knife was to be made without the aid of either the touch or the sight. This plan was, therefore, at once relinquished, and I made an incision, three inches long, through the skin and cellular membrane down to the fascia of the oblique muscle. This fascia being opened below the abdominal ring, a director was passed upwards into the ring, which was dilated by a probe-pointed bistoury sufficiently to allow the return of the hernia without opening the sac.

The patient expressed himself as at once relieved from the general griping pains in the abdomen; and in half an hour after the operation he had a copious evacuation spontaneously. The wound was brought together by suture, covered with lint, which was kept in place by a T bandage. No bad symptoms appeared subsequently, and he recovered rapidly from the effects of the operation.*

Remarks.—The great advantages which have been derived from the subcutaneous mode of doing certain operations, have led to a proposal for its employment in the operation of strangulated hernia. If the sac could safely be opened, the stricture satisfactorily divided, and the hernia perfectly reduced by a mere subcutaneous cut, a great improvement would indeed be obtained by the introduction of this way of operating. But if, to avoid an incision of three or four inches in skin and cellular texture, we must run considerable risk of puncturing the hernial contents by a blind subcutaneous incision, then this proposal would not seem to merit an introduction into practice. Besides the danger of puncturing the hernial contents, there would in some cases be danger of returning a gangrenous intestine. These objections to the proposed method of operating, without looking for others, seem to me quite sufficient. I know that it has been successfully performed; but a few instances of success would not weigh much in my mind against the objections alluded to.

Case IV. *Strangulated Inguinal Hernia: attempt at reduction by posture and copious bleeding: operation in six hours after strangulation: rapid recovery.*—This patient, aged 24 years, belonging to the town of Nashua, N. H., was brought into the Massachusetts General Hospital on

* This man, about four weeks after the operation, died of accidental small-pox.

the 9th of June, 1843, during the surgical visit. He was affected with strangulated inguinal hernia, and was suffering very severe pain.

It appeared that he had had hernia for some years, and was in the habit of wearing a truss; that the hernia had escaped from under the truss, without any remarkable effort, on this morning at five o'clock. He had no pain or other bad symptoms at first; but applying to a medical practitioner, violent pressure, as he said, was made upon the tumour, with the intention of reducing it.

In consequence of this pressure, the part had become excessively painful, and so tender as scarcely to permit it to be touched. The tumour was about four inches in length, and two inches and a half in diameter: the smoothness of its surface indicated that the contents were intestine. The skin was red. The entrance of the tumour into the abdominal ring could be distinguished, and its passage above the ring through the abdominal canal.

Dr. Townsend, who had charge of the surgical patients in the hospital at this time, and Dr. Hayward being present, the following measures were agreed to and executed: to sit the patient up in a chair and bleed until he fainted; during the fainting, to attempt reduction by raising the heels over the shoulders of an attendant, and making moderate pressure on the tumour.

He was accordingly bled twenty-four ounces; then becoming faint, the feet were taken on the back of an assistant, and pressure was made in the manner proposed. The tension of the recti muscles appeared to operate unfavourably by producing compression on the abdominal viscera; this was partially obviated by letting him down till the pelvis rested on the bed. Pressure on the tumour, attempts to insinuate the hernia through the ring, pressure on the lower part of the abdomen directed from below upwards, were now practised with the view of returning the hernial contents. The efforts made in this way having been unsuccessful, the patient was elevated, placed on a chair, and bled from the other arm till he again became faint, when the manœuvres above detailed were repeated, but the tumour did not yield in the slightest degree.

At this stage it was determined, on consultation, that instead of going through the common routine of applications, an operation should be immediately resorted to. The patient was, therefore, removed to the operating theatre; the part concerned was shaved, he was then placed on the table, and the operation performed in the manner to be described.

A small puncture was made with a knife, and the probe-pointed bistoury was introduced, in the hope of insinuating it through the fascia into the abdominal ring, and dilating the ring by a subcutaneous cut. The excessive sensibility of the part increased the ordinary difficulty of this mode of operating, so that it was relinquished.

An incision was then made about three inches long, beginning an inch above the abdominal ring, and ending two inches below it. The dissection was continued the whole length of the wound through the cellular texture.

fascia and cremaster, till the covering of the sac appeared thin. The movements of the patient from excessive sensibility, rendered it impracticable to dilate the stricture without opening the sac; wherefore a portion of this covering being raised by the forceps, it was cautiously divided by the point of a knife, and a minute stream of water issuing from it, indicated the opening of the sac. A further dilatation of the opening being then made, about two tablespoonfuls of water were discharged.

The finger was next introduced through this orifice in the sac, which had been enlarged to about two inches, in search of the stricture. This was so blocked up by intestine, as not to be readily discriminated; but after two or three minutes' delay, the extremity of the little finger was insinuated into the stricture, which was obviously in the tendon of the external oblique muscle at the abdominal ring. The probe-pointed bistoury was now introduced with its flat surface on the finger, and then having its edge turned forwards, it was moved in a direction upwards by the finger which was in the wound, and thus the stricture was safely dilated, and the bistoury was then laid aside.

The intestine which filled the sac was of a deep purple colour, though the strangulation had existed only six hours. This part being gently drawn down, a portion of sound intestine, which lay above the stricture, was pulled out of it; then the effort was made to return the intestine by pushing in the internal layer, or that towards the median line. This not succeeding, the effort was made on the outer fold of intestine, which, lying behind the other, passed in without difficulty. The hernia was thus reduced, and the patient immediately relieved from his state of suffering.

The scrotal artery and one of its branches required ligature. The edges of the wound were brought together by a number of fine sutures; a cold water compress was applied upon it, and the patient was directed, whenever he had occasion to move, to place his right hand on the wound. He was then conveyed to bed, and three hours after had an enema which operated favourably.

He passed the night after the operation quietly, and the next morning was in a cheerful and natural state: the pulse was healthy, the skin cool, the tongue had a slight fur. His appetite was good; there was no pain nor tenderness in the abdomen. A purgative of senna was employed, which operated freely. His recovery was rapid, and in a few days he took his departure from the hospital.

Remark.—This case particularly shows the advantage of an early resort to the operation. The great pain and tenderness in the hernia which this patient experienced, and the dark colour of the intestine when the sac was opened, make it probable that the processes of inflammation would have proceeded rapidly, and terminated in gangrene at an early period. The pain of the operation was not greater than, if so great as, that from the pressure employed in taxis, and the immediate effect of the wound, the exposure and handling of the intestine, were productive of very slight consequences.

Case V. *Crural Hernia: operation in thirty-two hours after strangulation: effort at the permanent cure of the rupture: effects of confinement in the horizontal posture.*—A brickmaker, about 35 years old, was brought into the Massachusetts General Hospital on the 21st of April, 1844. His brother, who had undergone ligature of the subclavian artery, was at the same time a patient in the hospital. He is a tall, rather spare man; he has been subject to hernia fourteen years, and retained it by a truss.

On the day previous, being at work at his business, the hernia escaped from under the truss, and he felt a severe pain in the bowels. Soon after he was seized with vomiting, and the pain becoming very acute, in the following night he sent for Dr. Hooker, of East Cambridge, where he resided. Dr. H. tried taxis without success, then bled him, gave him an injection, and after having continued his efforts for a number of hours, he sent him to the hospital. He was there put into a warm bath, cold applications were made, and moderate pressure was tried once more. No diminution of the tumour taking place, the operation was agreed upon in consultation with my colleagues, Drs. Hayward and Townsend, and resorted to at 5 o'clock, P. M., about thirty-two hours after strangulation, and eight after he entered the hospital.

The parts having been cleared of hair, and the patient placed on the table with his legs hanging down, and his head supported in an easy posture, the tumour was once more carefully examined previous to operating. It lay in the right groin, was about two inches in diameter, and occupied the space directly over Poupart's ligament, one half of the tumour being above, and one half below this ligament. The skin was then drawn up in a double fold; its division made a wound about two inches and a half long, and uncovered the anterior face of the hernia; this was invested, as usual, in crural hernia, by a quantity of fat. I then drew the tumour down from the face of the external oblique muscle, and endeavoured to expose the fascia investing the neck of the sac; but the tumour could not be sufficiently displaced to allow this. I therefore dissected the fat from the sac, found a little soft rising, indicating a collection of water at that point, punctured this, introduced a director, and opened the sac to the edge of Poupart's ligament; the fascia being, as usual in crural hernia, very thin. A mass of omentum was exposed, and this being raised, a fold of dark-coloured intestine was seen lying under it: the handling of these parts gave no pain to the patient.

I then attempted to insinuate the little finger of the left hand under the edge of Poupart's ligament, but could only find room for the nail. On this a probe-pointed bistoury was placed, and by a small incision the end of the finger could be passed far enough to feel the semi-lunar insertion of the external oblique muscle into the os pubis. This being divided by an incision towards the median line, sufficiently to allow the finger to pass, the knife was withdrawn, and the intestine readily returned into the cavity of the abdomen. The omentum was then pushed up, but a small process of it immediately came back. By passing the finger into the neck of the sac, I

ascertained that this portion of omentum had contracted adhesion to that part; this was considered fortunate, as it might serve to aid in closing the hernial aperture. The examination of the omentum gave an opportunity of noticing the obturator artery; I found it passing transversely from the epigastric to the obturator foramen, in a line, as nearly as I could judge, an inch below the crural aperture.

In dressing the wound, I wished, if possible, to do something towards the prevention of a return of the rupture. For this purpose, instead of sewing the edges of the skin together, I included in the suture an inch of integument on each side of the wound directly over the crural ring, so as to shorten the skin at that point two inches. Large quantities of soft lint were laid on the wound, and this was supported by a bandage; he was directed, whenever he moved or had an evacuation, to place his hand over the wound.

The patient was at once relieved from pain. In two hours he had an injection which operated favourably. The next morning he took a small dose of senna, which purged him moderately; he was free from any suffering, but complained of hunger, for which he was allowed gruel and light drinks.

On the fourth day after the operation, the wound having nearly united by the first intention, there was a thickening of the cellular membrane around the incision, with a slight erythematous appearance of the skin. For this he was ordered a laxative, and the application of cucumber ointment to the part; under these measures, in the course of thirty-six hours, the erythema disappeared. He convalesced rapidly, and on the fifteenth day was so well, that he asked permission to go home, but was induced to remain a few days longer in the hospital.

The patient had been restricted to the horizontal position, without having been once raised after the operation, till May 8th, seventeen days, in order to give the hernial aperture time to close, by means of the inflammation produced by the suture and the wound of the operation. At this time, after having been exposed to an open window near his bed, he was seized with chills followed by febrile reaction, some soreness of the throat, and a very dry tongue. The appetite of course failed, but there was no great disposition for liquids; the respiration was without any labour; he had a slight propensity to cough. Percussion on the forepart of the chest presented nothing extraordinary; the respiratory murmur was not distinctly audible on the left side. These symptoms were thought to be of a grave character, and arising from congestive inflammation, produced by the combined action of cold on the skin and long confinement in the horizontal posture. It was not thought expedient to bleed him, but he was largely blistered on the chest, the bowels were evacuated, and hot applications made to the extremities.

After the lapse of a day or two, the severity of the symptoms having passed off, he was ordered to be raised in bed for a short time daily, and the back, being then accessible, was examined; the sound on percussion was

dull on the left side; crepitous rattle was heard at the upper part of the lung; at the lower part there was no audible murmur. The cough had become rare, but was attended with the expectoration of a very dark-coloured mucus.

He continued in this condition with very little variation, till the 18th of May, when it was evident that his disease had ameliorated, and his state was no longer one of danger. Directions were given to have his position altered occasionally, from the back to the side. From this time he rapidly convalesced, and in a few days he was discharged from the hospital.

Remarks.—In this case the patient was immediately relieved, by the operation, from very great suffering, and had afterwards no symptom, worthy of notice, which was dependent on it. The existence of erythema in the hospital at the time slightly retarded his recovery; but after this had passed off, a formidable affection, not immediately connected with the operation, produced a more serious impression on him.

It is well known, that when patients are very closely confined to the bed by accidents connected with wounds, the pulmonary circulation is apt to become languid, and eventually to result in congestive inflammation. The signs of this affection are in many of these cases so indistinct, that the disease often passes unnoticed, or is confounded with the preceding affection. A singular coincidence presented itself in the occurrence of a similar disease, congestive inflammation of the lungs, in the brother of this patient, who had been operated on for ligature of the subclavian artery a short time before. The liability to these attacks should make us careful not to enforce a total immobility of the body, where it can possibly be avoided.*

* The following case will illustrate more strongly the dangers of too long confinement in the horizontal posture.

Some years ago, I was called, by an eminent physician in this vicinity, to see a patient of his, a female, who had been for eight days suffering from a strangulated crural hernia. She was cold and almost pulseless; the skin over the hernia was dark coloured. I made an incision through the tumour into the sac, and opened it for about two inches. The intestine was found to be sloughing. The patient was, of course, apparently in a hopeless state. Cordials were given her, and, contrary to expectation, she revived; the gangrenous parts separated; the fæces discharged themselves from the wound. The parts put on a healthy appearance, and in about four weeks after the operation, by the aid of pressure, the fæces began to assume their natural course.

From this time I saw no more of the patient; but about three weeks afterwards, or in seven weeks from the time of the operation, I was requested to examine her body. It appeared that she had improved constantly, but had never been allowed to rise in bed, from an apprehension that the intestines would make their way through the wound. On the night previous to her death, awaking suddenly, instead of drinking in the horizontal posture, as she had been accustomed to do, from the impulse of the moment she rose in bed quickly, drank the fluid offered her, and then fell back in a state of syncope, from which she never recovered.

I carefully examined the body, particularly the brain, and could discover no physical cause for her death, excepting perhaps that the brain was unusually free from

It is a little remarkable, that this is the only instance in which I have had to do the operation for strangulated crural hernia in the male subject, while I have done it a great number of times for females. By some late French authorities, it would appear that crural hernia was as common in the male as scrotal; my own observation would lead to a very different result. In the course of my life, I have seen but a few instances of the existence of crural hernia in the male, while I have met with a very great number of scrotal.

Case VI. *Appearances after death of the parts concerned in a strangulated hernia; no stricture at the mouth of the sac, and no appearance of peritoneal inflammation.*—An Irish seaman, about 30 years old, was brought into the hospital, on the 19th of April, 1844, cold and pulseless. It appeared that he had, for some time back, had a scrotal hernia; that four days since he exhibited marks of indisposition without explaining the nature of his sufferings. On this morning, a medical gentleman, Dr. Adams, was sent for, who ascertained that he had a strangulated hernia, and advised his being brought to the hospital, which was accomplished at 10 o'clock of same day. When he arrived there he was in a dying state, so that nothing could be done for him, and soon after he expired.

On the morning of April 20th, I examined the body. The dead man appeared to have been a stout, healthy person, with a good share of adipose substance about him. The skin was generally of a livid colour. The scrotum exhibited a tumour nearly six inches in length, and about the same in diameter; it had a livid appearance, and in one part was almost gangrenous.

I made an incision beginning three inches above the abdominal ring, and carrying it down to the testicle. The skin was then dissected off for an inch on each side, thus uncovering the fascia superficialis, which was thin. Below this was found a fibrous organization, composed of strong fibres, covering the upper part of the hernial tumour. These fibres were interwoven with cellular texture, so that the whole could be raised from the upper part of the tumour in the form of a membrane. Under this appeared the fasciculi of the cremaster muscle, extending towards the lower part of the tumour, and forming there a continuous thin muscular membrane. This layer was raised for about two inches, leaving the fasciculi entire at the upper part of the hernial tumour, and beneath this appeared a fascia of about the thickness of a sheet of writing paper, which seemed to be the

blood. The parts concerned in the hernia were preserved, and also a drawing made of them. They beautifully illustrate the process by which nature unites into one the two orifices of a sphacelated intestine, thereby restoring the continuity of the canal.

Had this patient been gradually raised in bed, soon after the ends of the intestine had formed, as they do in such cases, a union with the orifice of the hernial sac, she would, it is to be presumed, have escaped the fatal syncope caused by a sudden change from the horizontal to the vertical position, after having remained so long a time in the former state, and perhaps have ultimately recovered.

immediate covering of the sac, but on dissecting it delicately, it was found to present a number of fibrous layers, the last of which, like a fine gauze, immediately invested the peritoneum. This being opened, a copious discharge of yellow serum took place, and the black intestine presented itself at the aperture. Having resolved to preserve the parts as entire as possible, I did not increase the aperture of the sac beyond two inches, as stated before.

The hernia not being reducible, I proceeded to examine the cause of the impediment, being desirous to know whether there was in this case any support afforded to the doctrine lately put out, that all strangulations are in the mouth of the sac. Examining the superficial fascia over the abdominal ring, I found it excessively tense from the intestinal tumour within it. I then cautiously dissected through this fascia, without producing any material change in the tension of the abdominal ring. The dissection was therefore continued till the tendon of the external oblique muscle was divided, the fibres of the cremaster within being carefully left untouched, so that nothing but the ring and fascia should be cut. Then passing a bougie through the aperture of the sac and upwards to the stricture, with a little management, it was insinuated through the stricture, after which a bougie of larger size being passed in the same direction, was without difficulty pushed into the cavity of the abdomen. Then I opened this cavity, by an incision across the umbilicus, and another at right angles with it, and found the abdomen containing a considerable quantity of serum, the small intestine generally black and crowded with fluid, which the friends of the patient had given him with kind intentions no doubt, but which must have greatly distressed him and accelerated his death. On passing the fingers to the inner ring, the mouth of the sac was found to be between one and two inches in diameter, and notwithstanding the swelled intestine and fat mesentery, the finger could be readily introduced by the side of the intestine, showing that no stricture existed at the mouth of the sac.

It has been stated that the small intestine was of a black colour generally. This fact I was at a loss to account for, because there was neither any exudation of lymph, nor other mark of inflammation of the serous membrane of the parietes of the abdomen, nor of the serous investment of the intestine; but presently it was explained, by noticing that the whole mesentery was in a state of tension, from the part of it existing in the hernial tumour. This tension was so great, in consequence of the traction on the vessels, as to interrupt the circulation through all the mesenteric vessels, and produce a congestion of blood in the veins.

A second subject of inquiry, the existence of peritoneal inflammation, remained to be examined. The peritoneum, as already stated, no where exhibited any considerable degree of inflammation; it was not discoloured, except from the mucous membrane within it, and at no part exhibited the slightest exudation of lymph, either in the cavity of the abdomen, or in the

hernial sac. There was no omentum in the sac, nor in any part of the inferior abdominal region.

Remarks.—It appears, then, that the phenomena of this case give no support to the opinion, that the seat of strangulation is at the mouth of the sac. For the mouth of the sac was quite expanded, and the actual seat of constriction resided in the tendon of the external oblique muscle at the abdominal ring. Secondly, there was no distinct appearance of peritoneal inflammation.

In this case the stricture was removed by dissection from without, for although the sac was previously opened, yet the stricture was not divided from its interior, so that probably this hernia might have been reduced without at all cutting into the hernial sac, and the intestine returned into the cavity of the abdomen. If this operation had been resorted to within twenty-four hours of strangulation, the patient's life would, perhaps, have been saved, and he would have been restored to health in a few days.

Case VII.—The following case is, perhaps, sufficiently remarkable to allow of its introduction in this place, although it is not connected with the principal topics above noticed.

I was requested by Dr. Parker to see a patient of his, who had been attacked with strangulation on the day previous. The hernia was scrotal, on the right side, and of considerable size. I made careful and continued attempts to effect the reduction without success; other measures having been previously employed, I recommended an operation as soon as the patient could be brought to submit to it. In three or four hours, his consent having been obtained, the parts concerned were shaved, and all other arrangements made for its performance.

The patient was laid on a table, with his legs hanging down as usual; I placed the thumb and fore-finger of the left hand on the skin over each side of the hernia, without making pressure, turned to receive a scalpel from an assistant behind me, and bringing the scalpel down to the surface of the hernia, I perceived there was no longer any tumour; the hernia had at that moment receded, and was perfectly reduced. The patient, to his great satisfaction, was restored to his bed, and had an injection, which operated favourably that night. The next day he took a dose of senna, which cleared his bowels, and in a few days he was quite well.

General Reflections.—The importance of an early resort to a surgical operation in strangulated hernia will, I think, sufficiently appear from the cases recorded above. These have principally occurred within the last six years; they do not include all which have come under my observation during that time; but those not here recorded confirm the same doctrine, since they have been uniformly successful, with the exception of a case admitted to the hospital in October, 1838, and which was not operated on till three

days had elapsed from the period of strangulation, for which reason the details of this case have not been given.

The common advice is to employ pressure, and afterwards a certain routine of applications, viz., bleeding, the warm bath, cold to the part, injections of tobacco, with perhaps other remedies, as opium, belladonna, etc., and if these fail, then to operate. In the meanwhile the patient continues in great distress, with an inflammation gradually increasing, and threatening to become unmanageable and fatal. A discussion of the utility of these, and other modes of effecting the reduction, would extend this paper to too great a length; I will only, therefore, briefly state the results of my experience in regard to them. First, pressure, actively and judiciously employed for a short time, is proper and indispensable; if long continued, either by the hand, bandage, bags of air, water or mercury, it is calculated rather to increase inflammation than to reduce the hernia. Second, bleeding, as above stated, may be carried to a considerable extent under the eye of a judicious and experienced practitioner. Third, the warm bath may be resorted to in mild cases, but in bad strangulations it is useless, and sometimes seems to increase the tension of the abdomen. Fourth, cold to the part may be employed for a short time in the early stage of the affection; when long continued it may produce gangrene, as I have myself experienced. Fifth, the injection of tobacco is an uncertain and dangerous application, wholly inefficacious when the strength of the infusion is weak, and dangerous when it is strong. Sixth, large doses of opium I have known to be useful, giving the patient temporary relief, and afterwards causing muscular relaxation favourable to the reduction of the hernia. Purgative medicines are almost always pernicious. The local application of belladonna, as practised in Germany, appears to me to be a trifling with the life of the patient. It would not be proper, for reasons already hinted at, to consider in this place other modes of treating strangulated hernia, as, for example, the attempt to remove the stricture by dilatation without cutting. This proposal, made by a distinguished English physician, seems to me rather extraordinary: in nearly every case of strangulated hernia, which I have seen and known of, there has been barely room to introduce a small instrument, such as a director, or a narrow-bladed knife. The attempt to introduce and employ dilators, of sufficient strength to distend the fibrous apparatus of the abdominal and crural rings, would, I humbly conceive, be nugatory, if not dangerous.

It would seem, from the recent reports of the Parisian hospitals, that the operation is usually too long delayed, being deferred for two or three days. [See the Reports of the Practice in Hôtel-Dieu. *Paris Med. Gaz.*, vol. x.] This matter is the more worthy of discussion, for we look to these hospitals as authority not to be excelled on the subject of surgical operations. From data collected by M. Malgaigne, it appears, that the number of cases of strangulated hernia operated upon, in the hospitals of Paris, from January 1st, 1836, to December 31st, 1840, were 220, and of these 133 died. [Vide

Gaz. Med. de Paris, tom. x. p. 460.] Also from the surgical records of the Hôtel-Dieu, as given in the same volume of the work already referred to, on page 355, it appears, that the number of cases of strangulated hernia admitted to this hospital during the year 1841, were, of crural hernia 6, of inguinal 3. The deaths of those operated on were 5; one death occurred in a patient not operated on. Allowing, then, that this one case was of too long standing to permit an operation at the time of its admission to the hospital, we still have five deaths in eight operations. The result in our practice, as already stated, has been very different; it being a rare occurrence for us to lose a patient after the operation for strangulated hernia, if called to him in the first period of the attack. Possibly these cases alluded to as received into the Parisian hospitals may have been generally strangulated for some days prior to their admission.

Another remark which may be made in this connection is, that if the operation be long delayed, the parts swell, and thus increase the difficulty of the reduction. In fact, the surgeon should bear in mind, when he employs taxis, the difficulty which may arise, if he is compelled to resort to the operation, from the swelled state of the hernial contents, and their increased sensibility, in consequence of pressure too long continued.*

For these reasons, we cannot too strongly recommend an early resort to the operation in cases of bad strangulation; those where the pain, tenderness and firmness of the tumour are great, and where a constitutional affection distinctly exists. In such, after a scientific and cautious use of pressure, I should advise the following course, that general bleeding be immediately employed, and continued until the patient is made faint. This course will bring on that faintness, which produces the highest degree of relaxation, as well as exert another most important effect in preventing or diminishing inflammation in the affected part. In this state the hernia may usually be reduced, if reducible without an operation. The employment of the warm-bath, of cold to the part, of tobacco, etc., is inferior in efficacy to copious bleeding; they exhaust a precious period of time, and the strength of the patient. But in cases of strangulation, not attended with severe pain, or other local and constitutional disturbance, the operation should not be too hastily resorted to.

With regard to the seat of the stricture, the question has been agitated in the French schools, whether strangulation ever exists in the external ab-

* The learned editor of the Paris Medical Gazette, May 11th, 1844, objects to the early operation for strangulated hernia, that taxis, when successful, is not followed by any of the bad consequences of herniotomy. Without entering into the discussion of this point, we should reply, that this argument does not appear to us a sufficient objection to early operation, for in every instance of capital disease, the first question the surgeon has to settle, and one paramount to all others, is, how he can most certainly secure his patient's life. Now we think there is satisfactory evidence in favour of the doctrine, that the early operation would save the greater number of lives.

dominal ring, and whether it is not always situated in the neck of the hernial sac. In most of the cases of inguinal hernia, which we have had occasion to see, the strangulation was in the external abdominal ring, and the division of this part relieved the stricture, and allowed the hernia to be returned without any interference from the neck of the sac. None of the cases here described, go to show that the stricture was in the mouth of the sac. I have, however, operated on cases where the stricture was at the upper ring, and some of these might, no doubt, be cases where the stricture was produced by the neck of the sac, but they are comparatively rare.

Another doctrine has been maintained by high authority, which teaches, that a considerable proportion of cases of supposed strangulated hernia are cases of inflammation of the hernial sac. The history of the instances falling within our experience, does not afford any support to this doctrine; and the appearance of the hernial contents in those operated on proves that they were inflamed from interruption to their circulation. In case fourth, for example, the intestine below the stricture was nearly black, but when an additional portion was drawn from the cavity of the abdomen, for the purpose of disengaging it from the stricture, the part thus drawn out was not discoloured. None of the cases reported in this article support this doctrine of peritoneal inflammation, and although such cases may sometimes present themselves, their occurrence is, we believe, exceedingly rare.

The practicability and utility in some instances of dividing the stricture, without opening the hernial sac, have been established by the experience of various eminent surgeons. We have here mentioned two cases, the first and third, in which this practice was employed with perfect success; in the case of crural hernia in the male, it was attempted, but could not be executed. On the whole, we think that this method of operating should be tried more frequently than it has been heretofore; we may even say that it should be generally attempted. In cases where there was reason to suspect gangrene of the hernial contents, it would be improper; in such it would be proper to open the sac and give the gangrenous part an opportunity of separating. In cases where the stricture was in the neck of the sac, whether at the lower ring or the upper, this operation would be inapplicable, but such cases, we apprehend, are not very frequent.

The last point which remains to be noticed is, the possibility of conducting the treatment, subsequent to the operation, so as to give the patient some security against the return of the rupture after his recovery. This has been fully shown in case fifth. In this case the patient wore a bandage for a few days; after the adhesion of the wound, it was discontinued. When he arose from his bed, afterwards, while he walked about the wards, and when he quitted the hospital, he had neither truss nor bandage, nor was there any appearance of the descent of the intestine. The plan to be recommended to gain the desired end, is the following. In bringing the wound together after the operation, introduce the needle for making the suture, at the distance of

one inch from the edge of the wound on one side, and bring it out at the distance of one inch from the edge on the opposite side. This suture will include two inches of skin; the thread should be tied so as to gather up this skin over the abdominal ring. Two such sutures should be employed, at the distance of little more than an inch from each other. In this way a natural pad will be formed, which will adhere to the aperture of the ring, and which may be sufficient to prevent the subsequent descent of the hernia.

ART. II.—*On the Pathology of Remittent Fever.* By JOHN A. SWETT, M. D., Physician to the New York Hospital.

DR. STEWARDSON, in his Essays on Remittent Fever, published in the *American Journal of the Medical Sciences*, of 1842 and '43, first called the attention of the profession to a peculiar condition of the liver as the anatomical characteristic of that disease. Being in attendance in the medical wards of the New York Hospital, during the months of August, September and October of the past year, the season when many cases of remittent fever are usually admitted, especially from the sailors who arrive from our southern ports, I determined to prosecute his inquiries. Unfortunately, for this object at least, but few fatal cases have occurred, and I would hesitate to communicate the few facts that I have to offer, did I not believe that new opinions can only become confirmed by the concurrent testimony of many independent observers.

The whole number of cases admitted to the hospital, during the three months, was thirty-four; of these, five terminated fatally, on the 12th, 13th, 14th, 18th and 20th day of the disease. The mean duration of the disease in twenty-three favourable cases, where it could be accurately noticed, was fifteen days, the maximum twenty-four days, the minimum ten days. The regularity with which the disease terminated in favourable cases is, I think, a striking feature in its history. In cases where the convalescence was protracted beyond the usual term, it appeared to me to be owing more to the existence of some complication than to the severity of the attack. The patients were generally young men, the average age in thirty-two cases being about twenty-two years. They were all attacked in a few days after leaving the port in which they had been exposed to the causes of the disease, usually about the eighth day, never later than the fourteenth. Twelve patients came from the ports of North Carolina, especially from Wilmington; eight from Virginia, especially from York and James rivers; nine from Savannah; one only from Charleston, S. C., one from Baltimore, one from Havana, one from Rochester, one from the Mississippi and Ohio rivers. No case entered the hospital in which the disease appeared to have

been contracted in this city or the neighbourhood, although it is said to have been more or less prevalent in these localities.

It is not my intention to enter into an analysis of the symptoms, beyond offering a few general statements. The cases, it is believed, presented no unusual features, and the detail of the symptoms would, therefore, be tedious. Most of the cases were ushered in by a chill, (twenty-three times in thirty-one cases). In two cases it was expressly stated that no chill occurred; it is possible that it may have been forgotten. The chills appeared irregularly, and usually ceased about the second day, occasionally at a much later period; twice on the sixth, the eighth, twice on the ninth, twice on the eleventh, and once as late as the thirteenth day. The febrile symptoms, heat of skin and acceleration of pulse, were always present when the patients entered the hospital, and usually continued until about the third day before convalescence. In most of the cases, an exacerbation came on about four o'clock, P. M., and continued until some time during the night, during which the pulse usually rose to 106—112, with a general aggravation of the symptoms; while in the morning it would be found from 96 to 100. In many cases, however, this remission in the symptoms was by no means so decided, and in some cases not more so than in the cases of continued fever, many of which have been observed in the hospital during the present season, and carefully compared with the cases from the South. So that the physician who should attempt to found his diagnosis of the two diseases upon the character of the remissions only, would not unfrequently find himself without a sure guide.

The symptoms of biliary derangement which have also given a name to the disease, were carefully noticed. In many the secretion of bile, as marked by the stools, was much increased in quantity or altered in its colour, so as to constitute one of the most striking symptoms of the disease. This was observed in fifteen, or about one-half the cases; while it was also noticed in many, even of the worst cases, especially among those which were admitted early in the season, that no apparent deviation from the healthy standard took place. The same may be observed of yellowness of the eyes as a symptom of biliary derangement—this symptom was observed in twenty-two cases; still it was entirely wanting in others where the disease was well marked.

Diarrhœa was absent in almost every case. All the patients required the use of purgatives at some period of the disease; they usually acted freely, but without leaving any symptoms of irritation behind them; on the contrary, they frequently afforded decided relief. Tympanitis, even in the cases where prostration was most marked, seldom or never existed, and the absence of abdominal pain and tenderness over those portions occupied by the intestines was also noticed. In one case only, there was much abdominal pain and tenderness—in this case, it was regarded as neuralgic. Over the upper portion of the abdomen the patients frequently complained of

tenderness on pressure, particularly over the stomach. This was usually slight, and not accompanied by pain as the general rule, even on careful questioning. This tenderness was commonly united with a certain degree of tension of the muscles, as might indeed be expected; it seldom extended to the region of the liver or the spleen. Thus while tenderness of the epigastrium is noticed sixteen times, in only two cases did it extend to the right hypochondrium, and in only four cases to the region of the spleen, although this latter organ was at the same time enlarged. (Six cases.)

Vomiting was a more frequent symptom, still it could seldom be regarded as an urgent one. Many of the patients had vomited before they reached the hospital, owing sometimes to emetics, which appeared, however, to do them more harm than good, sometimes perhaps to improper articles of drink, and still more frequently, I think, in connection with the chills that mark the early period of the disease. This symptom frequently ceased spontaneously after admission to the hospital, although I find that it occurred in sixteen cases after their admission, but never in excess. The matter vomited was the simple drinks that the patients used, frequently tinged a little with greenish or yellowish bile—in a very few instances only could the matter vomited be called emphatically bilious.

I would remark, also, that the tongue was usually coated, first with a thin white, at length with a more thick and dirty coat, but remained moist to the end of the disease, in at least two-thirds of the cases; it is noted as becoming dry in twelve cases only.

Bronchitis occurred in twelve cases, sometimes with mucous rattle, oftener without it. I should believe this to be an important complication, did it lead to the production of pneumonia, the immediate cause of death, I think, in two of the fatal cases; I cannot, however, discover any immediate connection.

The nervous symptoms, properly speaking, seem to me to constitute an important feature of this disease. The prostration of strength which accompanies the onset, was frequently the most prominent symptom throughout the disease in the estimation of the patient. Subsultus tendinum was occasionally noticed, (five times.) In one case, violent convulsive motions with opisthotonos occurred; the case, however, recovered, although the convalescence was protracted to the twenty-second day. Delirium was noticed in five cases, and stupor in nine cases. It is probable that few or no patients escaped more or less pain in the head and vertigo; it was not, however, noted in more than one-half the cases.

In no case were sudamina about the neck, or rose-coloured spots upon the abdomen noticed, although they were carefully looked for.

The urine was generally of natural appearance, and without sediment throughout the disease.

The treatment adopted was extremely simple. During the earlier periods of the disease, the patients were usually purged every second day by calo-

mel, grs. x., followed in a few hours by castor oil, ℥i. A marked degree of stupor was at once met by local depletion and ice to the head, or if the patient appeared too feeble for this, a blister was applied to the nucha. Vomiting and pain at the epigastrium were met by leeches to the part, and the free use of ice internally. As soon as decided remissions appeared, quinine was administered, a grain every two hours in solution. In cases, however, where no remission occurred, and where the patient appeared much exhausted, with a feeble pulse, a dry tongue and moderate heat of skin, the quinine was still administered, and sometimes in combination with stimulants. Occasionally this treatment was obliged to be interrupted, but generally it answered the best expectations, even when stupor and other prominent local symptoms were present. The most formidable symptoms we encountered were those of collapse. In two cases they proved fatal, and in a third, a patient whose case had presented nothing alarming, was suddenly seized with symptoms of this nature, and was only saved by the use of powerful stimulants. On reviewing the cases that have fallen under my care, it has appeared to me that the prominent symptoms threatening a fatal termination, have promptly yielded if promptly met, and that a large proportion of even severe cases will terminate successfully, if too much is not attempted during the ordinary progress of the case. The expectant method of treatment, founded in reason and experience, is, above all, applicable to fevers whose progress appears to be self-limited, although far from being uniform.

I have preferred introducing a full report of the five fatal cases as they are found in the medical register of the hospital. The notes were taken from dictation, by the Senior Walker, at the regular visit at one o'clock, P. M.

Case I.—W. A. Tuttle, ætat. 24, born in Connecticut, seaman, entered the New York Hospital, August 5th, 1844. He had usually enjoyed good health, until about three months before his admission, while at Porto Rico. He there became affected with diarrhœa, four to eight stools in twenty-four hours, which has continued to the present time. His passages have varied in colour, from green to brown, and his disease has been subjected to no treatment. Eight days ago he left Wilmington, N. C., and arrived in New York on the 4th. He was well during the voyage, with the exception of his diarrhœa, which did not affect, materially, his health, until two days ago, the day before his arrival. He was then seized with pain in the head, back and limbs, followed by a chill. On admission, he complained, also, of pain in the epigastrium, and in the left hypochondriac region; his stomach was quite irritable; tongue coated, white and moist; skin warm; pulse 104, regular. Has taken a dose of calomel and jalap, which vomited and purged him.

9th. Complains of dizziness and ringing in the ears; tongue slightly coated and moist; tenderness on pressure over the upper portion of the

abdomen, which is free from tympanitis; two or three stools in twenty-four hours; urine natural in appearance. Skin hot; pulse 100.

10*th*. Delirious last night; rational to-day, but rather stupid; no headache; tongue covered by a thin white coat; tenderness on pressure at the epigastrium. One stool; pulse 112, soft, of moderate strength; skin warmer than natural.

11*th*. Delirium at night, a little wandering to-day; less stupor; no pain in the head. Tongue white, moist. Five stools; no tympanitis; abdomen generally a little tender on pressure. Skin cool; pulse 96, regular, soft, of moderate strength.

In the evening the pulse had risen to 108, with hot skin; the patient appeared to be sleeping.

12*th*. Stupor, from which the patient cannot be roused; respiration laboured and noisy; alæ nasi flaring; tongue rather dry; three stools; abdomen soft, not distended; pulse 124, feeble, regular. Died comatose at 10 P. M.

Post-mortem examination fourteen hours after death.

Brain natural, presenting about the usual degree of venous congestion.

Lungs healthy, lower lobes somewhat congested, as is usual.

Stomach of the natural size, containing a small quantity of viscid, greenish fluid. Its mucous membrane covered with brownish mucus, appeared more vascular than natural. In the cul-de-sac this vascularity was arborescent, and apparently venous with small patches of ecchymosis near the cardiac orifice. The anterior and posterior surfaces were of a faint, pinkish brown hue, formed by numerous minute points in clusters. On the lesser curvature, near the pylorus, the membrane was pale and strongly contrasted with the rest. The natural consistence and thickness of this membrane were preserved.

The mucous membrane of the duodenum was injected like that of the stomach, otherwise natural; its mucous follicles not remarkably distinct.

The small intestines containing their fœcal matter of natural colour, were perfectly healthy; a little venous congestion existed near the end of the ileum.

The liver of natural size, presented externally a bronzed appearance; internally it presented an uniform olive tint; the granular structure was less distinct than natural. The organ was slightly softened, and discharged, when pressed, a considerable quantity of thin blood. The gall bladder was filled with viscid brownish bile, like thick molasses.

The spleen was rather large, and perhaps rather more soft and congested than usual, but not materially diseased.

Kidneys healthy; abdominal veins not congested. By accident, the condition of the large intestines has been omitted in the notes.

Case II.—Francis Lobey, ætat. 40; Ireland; engineer; entered the New York Hospital, August 29th, 1844. The patient was seized seven days

ago, while coming down the canal from Rochester, with a chill, pain in the head, limbs and abdomen; loss of appetite and vomiting, which symptoms have continued, for the most part, to the time of his admission. Complains of dizziness; tongue large, covered with a dirty white coat; tenderness at epigastrium; abdomen soft, bowels disposed to be loose. Skin of natural temperature; pulse 80.

Sept. 1*st.* Chill followed by fever yesterday afternoon, and vomiting. Skin to-day cool; pulse 88. Sulph. quinine.

2*d.* Has been sitting up this morning. Complains of a little headache; has vomited; pulse 100.

3*d.* Fever last evening, but no chill; pulse 92; this morning pulse 84; vomiting; two or three stools without medicine; abdomen soft, free from tympanitis; no tenderness on pressure, but coughing, of which he now complains, causes some pain in the region of the spleen.

4*th.* Fever last evening, no chill; skin this morning cool; pulse 100; eyes suffused; tongue dry and brown in the centre, moist at the edges; no inclination to vomit; thirst. The pain over the region of the spleen, on coughing, continues, and there is now some tenderness on pressure extending backward towards the region of the kidney; percussion and auscultation natural. Three stools.

5*th.* Nausea last evening, none to-day; slight tenderness in epigastrium and left hypochondrium; three dark, slimy, bilious stools; pulse 84; skin cool. Calomel, grs. x., followed by oil.

6*th.* Violent chill last evening, followed by little or no reaction; pulse 88, soft; tongue covered with a dirty yellowish coat, but moist; several stools after the oil, of good colour.

7*th.* No chill last evening; pulse 96, full. Three dark green slimy stools; no pain or tenderness in abdomen; tongue covered with a thick yellow coat, and dry. Calomel and oil.

8*th.* Last evening a chill, followed by fever and sweating, the excitement continuing all night. This morning the skin is cool; pulse 100; tongue dirty and dry; no vomiting. Slight tenderness in epigastric and hypochondriac regions; abdomen soft, free from distension; three stools, dark and slimy. Disposition to stupor.

9*th.* In the afternoon of yesterday the stupor had disappeared; but in the evening it returned with febrile excitement, but no chill. Stupor continues; pupils much contracted; head hot; pulse 140, feeble; is constantly groaning; respiration laborious. Lips and tongue dry; bowels freely open; abdomen not distended. Leeches; ice to head. Stimulants internally.

10*th.* Revived a little in the evening, but not sufficiently to answer questions. Although moribund, the skin is hot and perspiring; the heat of the head is pungent, notwithstanding the application of ice; pulse feeble, accelerated. Died an hour after the visit at 2, P. M.

Post-mortem examination eleven hours after death.

Brain not more congested than usual; slight sub-arachnoid effusion; about a drachm of fluid in the occipital fossa. The substance of the brain on the left side softer than on the right, particularly that portion forming the walls of the ventricle; the superficial portion of the optic thalamus being reduced to a white pulp. A little bloody serum was found in the posterior cornu; plexus choroides pale and full of small cysts. Ventricles not enlarged.

Lungs. Bronchial tubes much dilated, filled with a bloody frothy fluid; mucous membrane transparent, but a good deal of congestion beneath it. The lower lobe of both lungs was in the first stage of pneumonia, passing into the second stage at some points. Upper lobes the seat of marked pulmonary œdema.

Heart flabby, a little soft; containing a small quantity of fluid blood in the ventricles.

Stomach small, containing a thin dark green fluid. The mucous membrane of the left half of the organ was strikingly injected, and contrasting strongly, with its reddish-brown colour, with the pale yellowish tint of the right portion. The injection, when carefully examined, was ramiform and apparently venous. The mucous membrane was neither softened nor otherwise altered from its natural condition, unless on the anterior wall near the pylorus, where it was a little mammillated and thickened, although of a pale natural colour.

In the first three inches of the duodenum, the mucous membrane was of a light reddish-brown tint, but otherwise natural; the mucous follicles did not appear enlarged. The mucous membrane of the jejunum was of yellowish tint, and its cavity filled with a yellow viscid matter. The glands of Peyer were very distinct, contrasting strikingly, by their dead white colour, with the yellowish mucous tissue around them; but they, like the membrane about them, were neither thickened nor altered in consistence. In the ileum these glands were less distinct, and in the lower portion the intestine had a perfectly natural appearance; its mucous membrane was a little softened. Large intestines healthy, except in the rectum, where large dark patches of mucous membrane were found, but without softening or increased thickness; and with enlargement of the mucous follicles, evidences of chronic irritation.

Liver of natural size, bronzed externally, mixed with portions of a pale slate colour; this bronzed appearance being most marked over the anterior portion of the right lobe. Internally, the substance of the organ presented a muddy yellowish olive tint, the granulations still visible, but not as distinctly as natural; the change in colour was uniform. The liver felt more flabby than usual; but its tissue was not materially softened; on pressure, a little thin bloody fluid exuded. Gall bladder distended with a thick viscid bile, like molasses in colour and consistence.

Spleen enlarged, flabby, much softened.

Case III.—Mayo, ætat. 25, native of Massachusetts, seaman, entered

the New York Hospital, October 24th, 1844. The patient had arrived a week previous from Savannah, and was seized four days ago with pain in the limbs, loss of appetite, irregular chills followed by fever. At the time of his admission, he complained of pain in the head and dizziness; anorexia, thirst; tongue covered with a thin white coat, moist; no vomiting; no tenderness or distension of abdomen; no cough. Skin a little warm; pulse 112, regular, of good strength. Eyes a little injected, but aspect not materially altered. Bowels regular.

25*th*. Headache and dizziness continue; slight tenderness in epigastrium; no nausea; the spleen can be felt projecting under the ribs, but is not tender on pressure. No stool since yesterday; pulse 108, soft. Calomel, grs. x., followed by oil.

26*th*. Pulse 120; skin hot; last evening pulse 104. Headache and dizziness; tongue covered with a thin white coat, moist as before; abdomen free from tenderness, soft. The calomel and oil have operated very freely.

27*th*. Passed a restless night; complains of weakness, of headache and noises in the ears. Slight tenderness in the epigastrium, but no nausea; patient states that he has some appetite. No stool; pulse 100; skin a little warm. Calomel and oil.

28*th*. Pulse 110, regular; skin warm; feels about as yesterday; one stool from the purgative.

29*th*. Restless night; pulse 116; skin hot; bowels freely open, stools thin, but of healthy colour; slight tenderness over abdomen, particularly in the regions of the stomach and spleen.

30*th*. Complains of weakness; pulse 120, soft and feeble; subsultus; one or two stools; tongue looks well; no nausea. Ordered wine.

31*st*. Pulse 120, soft and feeble; subsultus continues; tongue continues clean and moist; no nausea; slight epigastric tenderness; abdomen soft; one stool. Has used wine freely.

Nov. 2*d*. Disposition to stupor and muttering, but no decided delirium. Slight pain in the head; tongue dry in centre, moist at tip, protruded with difficulty; soreness about the lips, which are disposed to bleed. Skin sallow, eyes yellow; abdomen soft, free from pain; two stools. Skin warm and harsh; pulse 100, rather feeble, but regular. Takes wine and arrow-root, also quinine, gr. i., every two hours.

3*d*. About as yesterday.

4*th*. Improved; slept quietly last night; had an injection this morning, which operated well, and revived him a good deal; aspect less dull, but eyes still yellow and complexion sallow. Tongue coated, white and moist; sulcated; abdomen soft and free from tenderness; skin warm and soft; pulse 104, regular, of good strength. Complains of no pain.

5*th*. Disposed to stupor; aspect dull, pale and sallow, eyes yellow and suffused; ulcers about nose and lips, which constantly bleed; will not protrude his tongue, but lips and teeth covered with sordes. Abdomen soft, no

tenderness or tympanitis; skin warm; pulse 92, of moderate strength; cough, with expectoration of dirty mucus; respiration oppressed.

6th. Passed the night pretty comfortably; now constant jactitation; twitchings of the muscles of the face and arms; constant groaning and muttering; does not speak, but appears to be conscious; eyes closed, pupils rather contracted; sordes on the teeth; tongue not protruded. Respiration 40, irregular, and with deep catching inspirations. No stool for 48 hours; pulse 132, small and feeble; skin warm and moist. Continues wine.

Evening. Jactitation and stupor continue; cannot swallow; pulse 160, small and feeble. Death at 7 A. M., Nov. 7th.

Post-mortem examination four hours after death. No external marks of decomposition; no tympanitis; skin generally of a yellowish tinge.

Head.—The brain and membranes were quite natural, except that traces of ancient arachnitis existed; the fissure separating the antero-inferior portion of the two hemispheres being united by old and organized adhesions; trifling adhesions also existed over the tentorium; the membranes generally adhered with unusual firmness to the cortical substance.

Thorax.—Both lungs were the seat of pneumonia, the lower lobes being principally affected, although in the right lung the inflammation had climbed up the posterior portion to the very apex; it was of the lobular form; nodules of granulated and softened texture and of a light red colour, surrounded by portions of a brownish-red or livid colour, in some parts dry, in others giving out a viscid reddish fluid more or less aërated. The bronchi were inflamed, the mucous membrane being injected and softened, and the tubes filled with a frothy mucus. The heart, rather large, contained a moderate quantity of blood in the right side, the left being contracted and nearly empty. A few drachms of serum in the pericardium.

Abdomen.—The stomach, somewhat smaller than usual, contained a considerable quantity of a thick, yellowish fluid, and but little mucus; its mucous membrane presented numerous large, transverse folds, with difficulty obliterated by pressure. It was evidently thickened in every part, but especially in the cul-de-sac, where it was also distinctly mammillated; its consistence was increased, but its natural colour was preserved, except on the posterior surface of the cul-de-sac, where several large bands, formed by a punctated and arborescent redness, with slight ecchymosis, existed. On these, however, the mucous membrane preserved the consistence and thickness noticed in the pale portions. No enlarged follicles were observed. The submucous and muscular coats, especially the latter, were also decidedly thickened.

The mucous membrane of the duodenum presented some punctated and arborescent redness, especially at the lower portion; here, also, the glands were unusually distinct. No decided softening or thickening was noticed.

The jejunum was healthy, except a few enlarged follicles in its upper portion; it was stained by brownish bile, and contained a considerable quan-

tity of thin, healthy, fæcal matter. Distinct but not excessive venous arborescence was noticed.

The ileum was thickened in all its coats, increasing from above downward; its mucous membrane was generally pale, with now and then patches of venous arborescence and of increased consistence. In the lower portion, the isolated follicles, as well as the glands of Peyer, were evidently hypertrophied, but pale, firm, and without any trace of ulceration or of surrounding injection. This intestine contained little fæcal matter. The hypertrophy of the intestinal canal extended in a slight degree to the large intestines, but without enlargement of the follicles. In the cæcum, much venous arborescence was noticed. The mesenteric glands were slightly hypertrophied, but pale and firm. The mesenteric veins were but slightly congested.

The liver presented, externally, a slate colour, which, when placed in a proper light, gave a fine bronze tint; internally, it was olive, tinged with yellow. The granular structure was quite distinct, and each granule was surrounded by a ring of vascular injection; the organ was of natural size, perhaps slightly softened in its tissues, giving out, when pressed, a moderate quantity of thin, bloody fluid. The gall-bladder contained a moderate quantity of viscid bile, of the colour and consistence of the dregs of molasses.

The spleen was large, but probably not beyond the normal size; it was decidedly softened, but not congested; bluish externally, internally of a dull brown colour. Pancreas and kidneys healthy.

In this case, the thickening of the coats of the stomach and intestines, the hypertrophy of Peyer's glands, was evidently an ancient affection, long antecedent to the attack of fever.

Case IV. A boy, ætat. fourteen years, of good constitution, was taken with symptoms of remittent fever while on the voyage from Georgetown, S. C., on the 13th of August. He entered the New York Hospital on the 24th. It appeared that he had received no medical attendance, and that his personal comfort had been much neglected, so that at the time of his admission, he was quite feeble and cold. Stimulants, however, revived him, so that in the evening there was high febrile excitement; but his intelligence was good, his tongue moist, his abdomen free from tenderness.

25th. Remission; no nausea; no abdominal tenderness; pulse accelerated; skin cool. Ordered quinine. In the evening, an exacerbation with restlessness and general pain, came on; the restlessness continued to increase and became excessive; the skin cold; the pulse so feeble that it soon ceased to beat; the intellect unimpaired. Death occurred in about one hour after the urgent symptoms were noticed.

Post-mortem examination sixteen hours after death.

Head natural.

Lungs somewhat congested in the lower lobes; traces of bronchial inflammation.

Stomach.—The mucous membrane was generally of a pale, brownish tint; on the anterior surface, a large, pinkish patch, from pointed injection was noticed. A dirty, viscid mucus adhered to the membrane, which, in the cul-de-sac, appeared slightly thickened, but everywhere of natural consistence; no follicles noticed. The organ contained a considerable quantity of a dirty, brownish-yellow fluid, of a sour smell.

The mucous membrane of the duodenum presented the same brownish tint as the stomach, but no injection, no softening or increased thickness. The small intestines were healthy, presenting in different parts patches of venous injection. The glands of Peyer were unusually distinct, but not apparently diseased; also the isolated follicles near the extremity of the ileum. The large intestines were healthy.

The *liver* was of the natural size. Externally, it presented a bluish-gray colour, with patches of bronze, especially on the anterior surface of the right lobe; internally, the organ was of a dull brownish hue, with a tinge of green and yellow, (olive.) The capillary vessels of the liver were unusually distinct, forming delicate circles, and, where most numerous, giving the part a reddish hue. The liver, however, was not loaded with blood nor softened in its tissue. The gall-bladder was full of a dark viscid bile, like molasses.

Spleen enlarged, rather softened and congested.

Kidneys natural.

Case V. A young man, ætat. about twenty-five years, was brought to the New York Hospital at about 6 P. M., Aug. 28th, 1844. He was at that time able to walk from the main to the north building; his pulse was of good strength, and he was in the full possession of his intellect. He stated that he had lately come from New Orleans by the Mississippi and Ohio rivers, and that during the voyage he had indulged in dissipation; that he was taken ill at Wheeling twelve or fourteen days previously with symptoms of fever, viz., chills followed by heat, pain in the head and limbs, vomiting, loss of appetite, &c., and that he had continued ill ever since. About 8 P. M., he was seen again by the resident physician and found to be rather feeble and sinking; a little wine was ordered. At 9 P. M., I found him in a state of collapse; skin cold, nearly pulseless, excessive jactitation, complaining of severe pain in the thighs, but of none in the head or abdomen; intellect not affected. His tongue was slightly coated but moist; he had retched once since his admission, but had not vomited or purged. The free use of stimulants internally and externally did no good. He died at 10 P. M.

Post-mortem examination thirteen hours after death.

Head natural; slight subarachnoid effusion.

Lungs somewhat congested with venous blood and frothy serum in the lower lobes; bronchi containing frothy mucus; livid from submucous injection.

Heart natural.

Stomach of natural size, containing about a pint of dirty yellow fluid mixed with mucus. The mucous membrane, more or less covered by viscid mucus, was generally of a dusky red colour, less marked along the lesser curvature, and least of all in the pyloric portion. This redness, when carefully examined, was found to be formed by minute points, in many parts so closely clustered as to form spots. A portion of the posterior surface was tinged green, probably by bile. The membrane generally was mammillated and thickened, but this existed in the most marked degree in the cul-de-sac, diminishing towards the pylorus, (hypertrophy.)

The mucous membrane of the duodenum was of a dusky red colour for the first inch from the pylorus; the remaining portion was of a dirty yellowish-green colour; it appeared natural in consistence and thickness, and the mucous follicles did not appear at all enlarged. The mucous membrane of the jejunum was also tinged with the same dirty yellow or greenish colour, most marked about the upper portion, and which gradually disappeared in the ileum. The glands of Peyer were very distinct, from their pale white colour contrasting strongly with the dirty hue of the surrounding mucous membrane. The glands, however, as well as the mucous membrane, were neither thickened, softened nor injected, save a little venous arborescent injection in a few portions. A few enlarged, solitary follicles, were also noticed near the end of the ileum. The large intestines were healthy. The mesenteric glands were generally hypertrophied, but natural in consistence and colour.

The *liver* was of natural size; viewed as a whole externally, it presented a pale slaty colour, and in many parts a bronze tint was very perceptible; internally, it presented a dirty olive colour—the granular structure of the organ being perfectly distinct. Its tissue seemed a little softened, and when pressed, gave out a trifling quantity of thin, bloody fluid; there was no vascular injection. Gall-bladder nearly empty; its lining membrane merely covered with the residuum of rhubarb-coloured bile.

Spleen enlarged, but not softened or congested.

Kidneys healthy.

It will be perceived that, in the five cases above detailed, the peculiar condition of the *liver*, which Dr. Stewardson has assumed as the *anatomical characteristic* of remittent fever, was uniformly found. I am aware that the case last stated is too meagre in its details to deserve much consideration, and that a rigid observer might entertain doubts as to its genuineness. It would not have been introduced, had not its pathological characters corresponded perfectly with what was noticed in the other cases, and had not the history, so far as it could be obtained during life, given me the same impression even before the post-mortem examination was made. Indeed, the symptoms of collapse were so precisely similar to those noticed in two other cases of undoubted remittent fever which presented themselves during the

past season, and one of which terminated fatally, that I think, all things considered, but little doubt can exist on the subject. Two important considerations naturally present themselves here. First, what is the nature of this condition of the liver? The only positive change that I have been able to observe is that of colour—the slaty and bronze tint externally, the olive tint internally. It is true that a slight degree of softening of the tissues seems to exist in connection with this change of colour, but this has, in all my cases, been very moderate in degree, and, in one of the best marked cases of the disease, extremely doubtful. All will admit, I think, who have examined such cases, that there is no evidence of inflammation in the changes noticed, for although some degree of capillary injection existed in two of the cases, yet in the remaining three it was entirely absent. The natural size of the liver, the absence of lymph or pus, the small quantity of blood yielded by pressure, as well as the local symptoms during life, especially the absence of pain and tenderness over the region of the liver, tend to confirm the same idea. It appears to me not an unreasonable conclusion to suppose that the change of colour is produced by the action of the bile, especially when we remember the appearance of this secretion as observed in the gall-bladder.

Another important fact to establish is, whether this appearance of the liver may not be found in other diseases, and particularly in other forms of fever. This question can only be settled by long and multiplied observation. I can only say that, in six fatal cases of continued fever, four of which originated on ship-board and two in this city, no such condition was found, and that after careful examination with this object in view.

Dr. Stewardson, in his Essays, has attached much importance to the pathological condition of the stomach and duodenum, and is disposed to believe that inflammation of the mucous membrane of these organs is an important and frequent feature in the disease. I am unable to confirm this opinion. Most of the changes that I have observed in the mucous membrane of the stomach have appeared to me of a chronic nature, and probably long antecedent to and entirely independent of the acute disease. I refer particularly to the thickened and mammillated condition of the organ. The injection of the mucous membrane, although present in all the cases to a certain extent, did not appear to me beyond what is commonly noticed in other acute diseases, and might, in some cases at least, be referred distinctly to simple post-mortem venous congestion. The symptoms during life appear to me to strengthen this idea. The patients very seldom complained of pain in the region of the stomach, and although slight tenderness on pressure was frequently noticed, yet this did not exceed, I think, what is noticed with equal frequency in other febrile affections. As well might we refer the thirst and loss of appetite that attend all affections of this class to the same cause. The presence of vomiting in many cases might seem at first to strengthen the opinion Dr. Stewardson has formed on this point, yet a

careful study of this symptom has brought me to a different conclusion. As the general rule, I think, vomiting occurs early in the disease. In many cases, it appears to have a direct connection with the early chills. The same fact is noticed in cases of intermittent fever, and yet no one can suppose that inflammation has any thing to do with its production, since the patients can eat, drink stimulants, and use quinine with perfect impunity a few hours afterwards. In other cases, it is probable that the attempt to use improper food, which the stomach could not digest, may have induced this symptom in patients not yet subjected to medical treatment. At all events, the vomiting usually ceased after the admission of the patients, or became so infrequent and mild as to require no particular treatment. Finally, this view of the subject is still further confirmed, and this, I think, is the most important point of all, by the ease and evident advantage with which patients were able to use large doses of quinine and stimulants, in many cases during the height of the disease. Indeed, I am disposed to look upon these remedies as our chief dependence in bad cases of remittent fever. Dr. Stewardson also remarks, that traces of inflammation exist on the mucous membrane of the duodenum, and notices particularly an enlarged condition of the mucous follicles. This view, also, I have been unable to confirm. Indeed, so far as the local evidences of inflammation are concerned, the *lungs* were the organ most decidedly affected in the few cases I have examined. In two of the fatal cases, undoubted traces of pneumonia were found.

The mucous membrane of the intestinal canal, excluding the evidences of chronic disease, or of disease that had probably for a long time entirely ceased to exist, was found healthy. The symptoms during life confirmed this opinion. The absence of diarrhœa, of abdominal pain and tenderness, of tympanitis, the ease and even the feeling of relief with which purgatives acted, all go to prove the absence of at least inflammation in those important organs.

There is no point more interesting in the pathology of fever than the condition of *Peyer's glands*. Every one, I suppose, who has examined the subject with attention, will admit that these glands are commonly found inflamed in the continued fever of this country, both in the cases originating on shore and on ship-board during the passage from Europe. Still it is incontestable that cases do occur, principally, perhaps, in an epidemic form, in which these glands are not affected. Dr. Gerhard, of Philadelphia, now happily restored to science, has shown this in an epidemic fever which prevailed in that city a few years ago. The same thing has been also observed in this city under quite different circumstances in an epidemic ship fever which prevailed to a frightful extent on board two vessels bound to this port from Liverpool in the spring of 1836. In one of these vessels, the Garonne, there were two hundred passengers, of whom two-thirds were affected with fever. Twenty of these cases were admitted to the New York Hospital, and five of them terminated fatally. In all of these, the

glands of Peyer were carefully examined and found perfectly healthy. The brain and the lungs presented more evidences of disease than the abdominal organs. These cases were reported in the *New York Journal of Medicine and Surgery* for 1839, by Dr. N. Shook, formerly resident physician to the hospital.

The opinion prevails in New York, that inflammation of Peyer's glands may occur, also, in cases of remittent fever. This opinion has been strengthened by the post-mortem examinations made at the hospital, in 1840, by Dr. Richardson, resident physician for that year, and published by him in the above-mentioned Journal for 1841. Six cases of what was regarded as remittent fever, probably all the fatal cases which were examined during the season, are reported, and, *in all*, the glands of Peyer are stated as being affected. I feel inclined to offer some remarks upon these cases even at the risk of appearing tedious.

Case I. was a patient from Bermuda, who died in a state of stupor after having been eight days in the hospital. "The oval plates of Peyer were enlarged through the whole course of the ileum, but none of them ulcerated. The liver was very much enlarged, of a slate colour, and softened." This was probably a case of remittent fever.

Case II. was a patient who came from Richmond, Virginia—who also died while in a state of stupor, about three weeks after admission to the hospital. In this case, "in the lower portion of the ileum, the oval patches were enlarged but not ulcerated. The liver was considerably enlarged, of a dark slate colour, and softened. The gall-bladder was full of dark, tenacious, tar-like bile." This case, also, was probably one of remittent fever.

Case III. was an Irishman, who came from the Croton water-works, and who died on the fourteenth day with symptoms of acute peritonitis, which came on a few hours before death. The case was undoubtedly one of fever, but the symptoms detailed are too meagre to enable me to form any decided opinion as to the form of fever. On post-mortem examination, acute peritonitis from perforation of the ileum was found. "The aggregate glands of Peyer, from the middle of the jejunum to the termination of the ileum, were found in the different stages of disease, from simple enlargement (as in the jejunum) to ulceration, with *elevated*, *inflamed*, *irregular edges*, and, in one spot, as above referred to, perforation of all the coats. The mesenteric glands were swollen, and some of them contained pus. The liver of rather *light colour*, not softened. The gall-bladder contained about an ounce of yellow, watery bile." No one, I think, who has been accustomed to examine cases of fever, can fail to detect here the appearances of continued fever. I suspect that the diagnosis of this case was wrong.

Case IV. was a sailor, from Darien, Georgia, who had been ill a week. "Nothing definite could be learned of his symptoms before admission. He was found extremely feeble and prostrate; skin yellow; countenance sunken; body emaciated; intelligence pretty good; has no pain, tenderness or swelling of abdomen; bowels open, no diarrhœa; tongue white; pulse very feeble and frequent; extremities cold; very restless. He continued to sink gradually, notwithstanding the free use of stimulants, and died on the fourth day after admission."—"Through the whole length of the ileum, the oval patches of Peyer were enlarged, and, for the space of about twelve inches from the ileo-cæcal valves, were in a *state of ulceration*. The ulcers were of irregular shape, with elevated edges. Liver *congested*; gall-bladder filled with a very thick, tenacious bile; spleen enlarged and softened." The circumstances which favour the idea of remittent fever in this case, are the place of its origin and the yellow state of the skin; but are these conclusive as to its nature? I think not. I think we have had, the past season, in the hospital, a perfectly well-marked case of continued fever, which originated in the region where the remittent fever is also supposed to prevail, (Norfolk, Va.) As to the yellowness of the skin, I shall say nothing. The history of the case is very imperfect; we know nothing of its early history except its origin. After admission, the symptoms were those of sinking, and not in the least characteristic. The post-mortem appearances were those usually noticed in cases of continued fever.

Case V. was also a patient from Darien, Ga., who was taken decidedly ill about two days before admission, having previously complained of slight illness. He soon became delirious, then stupid. In this state he was brought to the hospital. His skin was cool; his pulse of moderate force and not frequent. This state continued for two days under the use of stimulants. He then became restless and delirious, and died in less than twenty-four hours. Marked venous congestion existed in the brain. "In the ileum, the oval patches of Peyer were found enlarged throughout its whole course, and most so in the lower portion near the ileo-cæcal valve. One of these patches presented *numerous small ulcers*. The mucous membrane was not altered between the patches. Spleen three times its normal size, and very much softened. The liver was enlarged, of a dark slate colour, and very much congested with blood." Notwithstanding the very imperfect history of this case, I am, on the whole, inclined to regard it as one of remittent fever, but suspect that actual ulceration, or even inflammation, did not exist. The reason for this opinion I will state in another place.

Case VI. was a sailor just arrived from Wilmington, N. C., who had been ill a few days, but no account is given of his previous symptoms. He was in a state of stupor when he entered the hospital, but soon revived. He continued a little stupid, with accelerated pulse, warm skin and much debility;

he soon passed again into a state of stupor and died on the sixth day after admission. The vessels on the surface of the brain were congested; lungs congested—the mucous membrane of the stomach was inflamed. "The mucous membrane of the intestines was reddened and softened throughout the whole track. In the ileum the oval patches of Peyer *were enlarged.* In the colon were numerous small ulcers; liver enlarged, of a dark chocolate colour and softened, bile like thick tar. Spleen enlarged and softened." The condition of Peyer's glands in this case was similar to that noticed in Case I. and II. It was probably a case of remittent fever.

In the above abstract of the six cases reported as cases of remittent fever, I have attempted only to present some of the more important facts. I must beg leave to refer again to the cases themselves for all the rest that is known in relation to them. Those who will take the pains to peruse them carefully, I think will agree with me, that they are generally too imperfectly reported, especially as to their *ante mortem* history, to enable us to form any decided opinion as to their nature. No one knows better than those attached to hospitals the difficulty that frequently attends the diagnosis of diseases; especially when they present many points of resemblance, when they constitute varieties of the same disease as in the present instance, rather than distinct species. The fact that a large number of cases are constantly under observation, while it ought, and with proper attention does, tend to improve the accuracy of diagnosis, will not protect us from the influence of certain prepossessions which may throw us off our guard, and lead us into great error. Thus the daily habit of examining new cases of fever coming from a certain locality, and which are generally found to belong to a certain type, the remittent for instance, may lead us to overlook and confound the occasional cases of a different type that present themselves under the same circumstances. In the New York Hospital the cases of Southern fever, occurring almost entirely among sailors, are placed in the Marine building and usually in the same wards. So that nothing is more easy than for the physician, on entering these wards, and finding a case of fever, to suppose that it is a case of the remittent type, and if the patient is too stupid to give an accurate account of his previous history or even of his present feelings, and death speedily occurs—the observer may continue under the influence of his first ideas, and even carry them to the autopsy room. Yet I am disposed to believe, that cases of genuine continued fever, do originate under circumstances where the causes of remittent fever are most likely to have affected the patient; that their true nature may be entirely overlooked from inattention. This I believe may have happened in some of the cases that I have ventured to criticise above. But that I may not suspect others on a point where I have, perhaps, erred myself, I will state a case where the same error was, I think, committed.

A patient entered one of the wards of the New York Hospital in which cases of remittent fever are usually placed. He had just arrived from a

southern port. Being a foreigner, speaking English but imperfectly, and being besides rather stupid from his disease, the history of his case was very imperfect. It was regarded, however, as a case of remittent fever. The patient continued stupid and soon died. I went to the autopsy with the same impression, but on entering the room, my senior Walker, called my attention to some sudamina upon the neck which had not been before observed. This first excited my suspicion that an error in the diagnosis had occurred. For I had never seen sudamina in any case of remittent fever, although they have been carefully looked for, while they are common in continued fever. The post-mortem examination confirmed this suspicion; all the usual post-mortem appearances of continued fever were found, while those of remittent fever were wanting. I left the autopsy room with my opinion of the case very much modified, to say the least.

Case VI. Daniel Hoffin, ætat. 35 years, native of Finland, seaman, entered the New York Hospital Oct. 6th 1844. The patient, at the time of his admission, was rather stupid, and spoke the English language quite imperfectly. It was only ascertained that he had arrived from Savannah a week previous, and that he had been ill five days.

August 7th.—Complains of headache, cheeks flushed, considerable dulness approaching to stupor; has bled once or twice from the nose; no yellowness of the eyes. Tongue covered with a dirty white coat, rather dry; pulse 120; skin warm, (early in the morning, pulse 104,) no vomiting, no tenderness or fulness of abdomen. Last evening, calomel grs. x., followed by oil this morning; this produced free passages of a thin dark bilious matter. Respiration pure.

8th. Stupor; face flushed and livid; eyes injected, rather yellow; tongue dry and brown; abdomen soft; one stool, copious, of a dark greenish-yellow fluid. Pulse 128, feeble; skin hot. Last evening the pulse was 102, and early this morning 104. Has taken quinine this morning,—ordered twelve leeches to head. Ice.

9th. Leeching, although the discharge of blood was free, produced no relief—in the evening the head becoming rather cool, the ice was discontinued—coma, pupils dilated. Patient, as he lies on his back, frequently turns his head with a rapid convulsive motion from side to side. Skin generally warm, but head cool; pulse 132, regular. Bowels freely moved this morning. Blister to nucha.

10th. Blister drew well, but no improvement; patient died at 7 A. M.

Post-mortem examination, 4 hours after death. General rigidity; the usual post-mortem lividity about the back and nates; a *few sudamina* noticed about the neck; no tympanitis. The deep cervical glands on the right side were enlarged, with softened tuberculous matter in their interior.

Head.—On removing the skull, a large quantity (6 ounces at least) of dark fluid blood flowed from the sinuses; two ounces of bloody serum in

the occipital fossa. Veins on the convexity of the brain moderately distended—moderate subarachnoid effusion; a few thread-like adhesions of considerable firmness, between the opposite surfaces of the arachnoid: the membranes peel off naturally. Cortical substance of the usual pale, ash colour. Medullary substance much more dotted with dark points than usual, especially posteriorly; cerebral substance of natural firmness; ventricles not distended: plexus choroides containing vesicles and granules, not congested (*traces of ancient arachnitis; marked venous congestion.*)

Thorax.—Lungs natural; moderate hypostatic congestion; bronchi natural. Heart firm, contracted, containing very little fluid blood. About half an ounce of serum in the pericardium; none in the pleura.

Abdomen.—Stomach of natural size; mucous membrane of an uniform pinkish-brown colour, formed by minute points close together, and covered by a thin layer of dirty viscid mucus; the stomach contained a small quantity of thin yellowish fluid. The mucous membrane was also much more thick and firm than natural, presenting large and prominent transverse folds not easily obliterated by pressure; it was not mammillated, neither were any enlarged follicles noticed. The muscular coat was also thickened, (hypertrophy). The mucous membrane of the duodenum and of the upper portion of the jejunum appeared rather thick and firm, and stained by healthy bile; below the jejunum was natural. The glands of Peyer were generally prominent and enlarged, the elevation and distinctness increasing from above downward. In the neighbourhood of the ileo-cæcal valve they were of a gray colour, with the orifices appearing like black points, and in some portions much thickened, softened and red from capillary injection, but not ulcerated. The mucous membrane in the lower portion of the ileum was much injected, chiefly with venous arborescence, mixed however with bands of bright red, formed by minute capillary points in which the membrane was softened. Large intestines, the seat of considerable venous congestion, otherwise healthy. Larger abdominal veins not congested; mesenteric glands slightly enlarged and red. Liver rather large and soft, containing considerable venous blood; externally of a reddish tint mottled with blue from venous congestion; internally the usual intermixture of red and yellowish spots presented itself. Gall bladder, containing a considerable quantity of dark, greenish bile. Spleen twice the common size, dark blue, congested and a little softened. Kidneys congested, otherwise healthy; bladder full of urine of natural appearance.

Having advocated the possibility of a mistake in the diagnosis of the remittent fever during life, I am still disposed to admit that most of the cases (three or four) published by Dr. Richardson, were cases of this form of fever. It remains now to show, how he might have been led into error, in supposing the glands of Peyer diseased. I suppose that every one will admit that when these glands are affected in fever, that it is a recent affection, the result of acute inflammation, and that we should, of course, expect to find

something more than simple enlargement of these glands; that we should expect to find softening and injection of the tissues as well as ulceration. In the cases, No. I., No. II, No. V., No. VI., reported by Dr. R., and which appeared to me best marked as cases of remittent fever, both by the history and the post-mortem appearances, especially by the condition of the liver; in three of these, the glands of Peyer are described as simply enlarged without other change. Is this any proof that they were the seat of acute inflammation? By reviewing my cases, it will be found that in four out of five, these glands are spoken of as unusually distinct, but this was owing in three cases to a mere difference in *colour*. They were neither elevated, softened nor injected, but simply by their pale white colour, strongly contrasted with the dirty hue of the surrounding mucous membrane. The explanation appears to me this; that the bile or some other secretion had stained the mucous membrane while the glands were not thus affected. I may, I think, reasonably ask whether this same condition did not exist in some of Dr. R's. cases, and whether this unusual *distinctness* of the glands was not mistaken for enlargement. But in my fourth case, (Mayo,) these glands were enlarged; were evidently hypertrophied; so also was the whole intestinal canal as well as the stomach in all their coats, and this existed with increased firmness of the tissues but without the least appearance of injection or ulceration. There can be no doubt that all these changes were long antecedent to the attack of fever, and if dependent on inflammation at all as to their origin, this had long also entirely subsided. In Case No. V. recorded by Dr. R., and where the slate-coloured liver was found, besides the general enlargement of Peyer's glands, but still with no mention of injection or softening, one patch alone is described as presenting numerous small ulcers. Every one accustomed to examine cases of fever would, I think, be rather surprised to find a single patch only, studded with small ulcers—this is not the usual appearance. But might not these small ulcers have existed only in appearance? I have repeatedly, in examining Peyer's glands, observed a reticulated or honeycombed appearance of their surface which at first presented very much the aspect of small ulcers, but yet which, on careful examination, especially with the microscope, appeared to be nothing more than a slight hypertrophy of the mucous membrane covering these patches, or perhaps even a congenital formation; for with this there was no appearance of disease, especially of recent disease. Finally, in the two cases where distinct and unequivocal evidences of inflammatory ulceration of Peyer's glands existed, (Cases III. and V.) there is much probability, I think, that they were cases of continued fever; the characteristic colour of the liver was entirely wanting; the history of the cases is extremely unsatisfactory; and one of them (Case III.) came from a locality where continued fever was quite as likely to prevail as the remittent form.

In the above remarks some may think that too much stress has been laid on the post-mortem appearances in the diagnosis of the different forms of

fever. I believe, however, that those will not think so, who agree with me in believing, that while the most careful attention at the bed side is necessary to the correct diagnosis of disease, yet that the truth of opinions formed there must be confirmed or refuted in the autopsy room. The great value of Dr Stewardson's observations on remittent fever, especially as to the peculiar condition of the liver, if future observation should confirm their correctness, will consist in the aid they afford to the correct diagnosis of the disease. But who shall say that their influence will not also be felt in the treatment? Certainly not those who believe as I do, that the multitude of conflicting opinions as to the treatment of diseases result mainly from errors in diagnosis.

New York, Nov. 1844.

[We append to the preceding very valuable and interesting paper, the following case of remittent fever with the autopsy, communicated, by Dr. Wm. T. Howard, to Dr. Stewardson, through whose kindness we are indebted for it. The anatomical character of the liver coincides entirely with that observed by Drs. Stewardson and Swett.]

Case of Remittent Fever; death; autopsy. By Wm. T. Howard, M. D. —Andros Pope, ætat. 40, a German, and common day-labourer, had been living for some months past, about fifteen miles from Baltimore, in a malarial region of country, annually visited by intermittent and remittent fevers. He was admitted into the hospital, Aug. 16th, 1843. His condition was such, that little satisfactory information could be obtained in reference to the history and mode of attack. It could only be learnt that he had been sick some six or eight days; had had six or eight chills and fevers; suffered much from headache during the febrile paroxysm, and experienced much general uneasiness. At the moment of admission, his mind was wandering, and he complained much of cephalalgia; he had fever, with a pulse of 96 per minute, and considerable tenderness over the epigastrium and right hypochondriac region. The *spleen* was enlarged and felt below the ribs.

Evening of the same day. Skin rather cool and moist; head somewhat clearer, though still painful; tenderness still over the epigastrium and right hypochondrium; pulse 92.

17*th*. This morning, skin hot and dry; great cephalalgia; pulse 96. He was ordered sul. quinine, ℈i., in solution, to be taken at once. One hour afterwards, the skin was slightly moist and cooler. Sul. quinine, ℈i., in solution, was again administered.

Evening of the same day. Skin cool and moist; pulse 85; less cephalalgia. Other symptoms little altered. Sul. quinine, ℈i., was ordered to be given at 12 o'clock. The patient expired about daylight on the morning of the 18th.

The patient had several epileptic fits during the day following his admission, both before and after the administration of quinine, each lasting about a minute or little more. He had been subject to them before his present attack. His mind was never clear after admission; and during the last twenty-four hours preceding death, slept during nearly the whole time, and was with difficulty aroused.

Autopsy ten hours after death.

Exterior.—Excessive rigidity, slight emaciation.

Head.—Slight effusion of blood under the arachnoid membrane, which membrane was slightly opalescent, and separated with great facility from the convolutions. The surface of the brain was of a marked pinky hue; and the cineritious portion was of a much redder colour than usually met with. The difference between it and the medullary portion well marked. When cut into, the surface seemed red, from the number of small vessels containing blood. The ventricles contained some little serum; and the veins traversing their surfaces were enlarged. The *choroid plexus* contained a number of hydatiform bodies. The substance of the brain normal.

Abdomen.—The liver extended below the ribs about two and a half inches, and encroached upon the stomach on the left side, which was largely distended, and reached below the umbilicus. The liver was smooth externally, and of a uniform slaty, bronze colour, marked with white striæ through it. When cut into, it presented the same uniform slaty, olive or bronze colour, with the red and yellow substances confounded together, so as not to be distinguished. Moist when cut into, its vessels not much gorged with blood, and easily penetrated by the finger. No one portion more changed than another. Gall-bladder contained about ℥iv. of bile, apparently healthy.

The *spleen* was nine inches long by about four in thickness. It was a perfect pulp, resembling in colour the damson juice; and when deprived of its envelope, not admitting the slightest handling.

Stomach.—This organ was large, and very much distended with gas. It contained a coat of viscid, glairy mucus, covering its entire surface, and scraped away with difficulty by the handle of the scalpel. The mucous membrane below, of a uniform pinky hue, soft and slightly thickened, giving, at the pyloric extremity, flakes half an inch long; in the great culde-sac, three to four lines. The mucous membrane slightly mammelonated; and when exposed to the air for some time, assumed a more florid hue. In the *duodenum*, the mucous membrane still more mammelonated, and the red colour more marked than in the stomach; friable, and presenting more evident traces of inflammation. The *jejunum* and *ileum* evinced little alteration; the mucous membrane somewhat softened, but normal as to colour. The glands of Peyer and Brunner alike perfectly normal, and only to be discovered by close inspection. Both these intestines contained a considera-

ble quantity of mucus stained by bile. The *colon* contained some fœcal matters mingled with mucus, and presented a few points of red injection. The bladder and kidneys natural.

Thorax.—The lungs were in their normal state. Their inferior posterior portions yielded a slight frothy serosity when cut into. The heart and great vessels contained blood not coagulated.

Baltimore Almshouse, Jan. 8th, 1844.

Art. III.—*On the Treatment of Yellow Fever.* By F. Wurdemann, M. D., of Charleston, S. C.

Those who have had frequent opportunities of observing yellow fever, know that it is often modified in different epidemics. It is in one so mild, that patients get well under almost every treatment; while in another, the action of an emetic or drastic cathartic at the commencement of the attack will place the case beyond the control of medicine. The "ten and ten" grain doses of calomel and jalap, which were so successful in the hands of Rush, have long been abandoned by the Southern practitioner; and salts and senega, once a popular remedy, are now only empirically prescribed. The present paper has been written chiefly to show the relative mortality in what may be called the mercurial treatment, and another which I now consider better adapted to the nature of the disease.

If I were asked what was the most prominent pathognomonic symptom in yellow fever, one that most distinguished it from those cases of remittent bilious fever complicated with gastritis, so prevalent during epidemics of the former, I would answer, the total cessation, or the much diminished and vitiated secretion of bile. For although it is sometimes ushered in by bilious vomiting, the bile thus ejected has been mechanically forced from the gall-bladder, where it had been collected previous to the attack. It is very certain that the restoration of the functions of the liver is the most favourable symptom in the course of the disease. The physiognomy of yellow fever differs also from that of the most aggravated cases of remittent bilious fever. In the former, there is a peculiar glassy appearance of the eyes, even when they are but slightly red; an anxious expression of the countenance, that the real or assumed calmness of the patient cannot entirely control; and a constant, but more or less strongly marked torpor of the cutaneous circulation, evinced by the slow return of blood pressed by the finger from the injected capillaries, as if these vessels were in a state of passive hyperemia.

From the prominent symptoms in yellow fever, the effects of remedial

agents and the autopsies I have made, I am free to confess that I believe it to be distinctly congestive; that, so far from gastro-duodenitis and hepatitis being present in every case, the vessels of the mucous membranes of the stomach, and, in bad cases, of the duodenum, are in a condition of passive hyperemia, and the liver in one of anemia. Cases are occasionally ushered in with gastritis and cerebritis, and these are generally fatal; but I have often been able to trace inflammation of the stomach, when present, to the injudicious use of emetics and drastic cathartics.

During the epidemic of 1838, that followed the extensive conflagration which laid waste nearly one-fourth of the city of Charleston, South Carolina, the congestive type of the disease was very distinct; many of the cases terminating in passive hemorrhages from the gums, from blistered surfaces and from scarifications of cups, and, in some, from the intestines. The city had been crowded with Irish labourers and northern mechanics, who had been engaged to rebuild its burnt district, and who, as strangers, were obnoxious to the malaria. This generated from numerous exposed cellars filled with stagnant rain-water, and from a large quantity of oyster-shells, recently removed from their muddy river beds and spread over several streets, was more rife than it had been for many years, and the epidemic spread rapidly over the whole city.

The number of cases that came under my care was 191, of which 25 died. About ten were mild, which will leave 181 well marked. Three-fourths of the subjects were addicted to the free use of ardent spirits, and many of the Irishmen, believing that the pains in the back and limbs proceeded from a "cowld," Anglice cold, had begun the treatment by hot whisky punch.

Two patients became sick while using daily more than a pint of brandy, and were deeply intoxicated when attacked. One, a mass of bloated flesh, died; the other, a Pole, whose whole surface was for several days mottled with red and purple, recovered. One woman, an Italian, was moribund when I first saw her; another, an elderly Irish woman, had black vomit, which ceased under the treatment; but the alvine evacuations, which were of the colour of pipe-clay and consistent, continued devoid of bile, and she died, apparently, in a state of anemia, on the fourth day after the cessation of the vomit: neither had had any previous medical treatment. Another Irish woman died soon after eating, during her convalescence, seven green apples. One was near the term of her gestation, and gave birth to a fine, healthy child, that throve and was alive the year after. The labour began in the last stage, and soon after I had removed the placenta, which was attended by less than the usual hemorrhage, she threw up black vomit, and died in a couple of hours. To give a fair estimate of the efficacy of the treatment, these should be deducted from the deaths, which will leave 20 in 176 cases.

The first and larger number of my patients were treated by the mercurial plan. When called to them in the first stage, and even in the second, if the pulse could bear it, I bled freely from the arm. The subjects were, generally, robust men, and twenty, sometimes thirty ounces of blood were drawn before the pulse became soft, the chief guide to the amount of the bleeding required. Except in cases in which intense headache threatened cerebritis, the patient was placed in the recumbent posture to avoid syncope, and allow enough blood to flow to make an impression on the congested abdominal vessels. The immediate effects of the venesection were a marked abatement of the pains in the eyeballs, back and limbs; often a cessation of vomiting and a softening of the skin. If the vomiting, frequently present at the commencement of the attack, continued, sinapisms were applied to the epigastrium, and enemata administered until the bowels were acted on, when it always ceased.

As soon as the stomach could retain it, ten grains of calomel were given every two hours, and two drachms of Epsom salts, in two ounces of water, an hour after each dose, until free catharsis was produced; the salts was then omitted, and the calomel, reduced to eight or six grains, was continued every two hours. The limbs and chest were now freely sponged with cold whisky and other evaporating lotions, repeated as often as the burning heat and dryness of the skin returned; and the patient, placed on a *diète absolue*, was ordered to assuage his thirst by ice, which was given *ad libitum*. When the arterial action had thus been somewhat subdued, a large blister was applied to the upper half of the abdomen, covering the region of the liver rather more than the left hypochondrium; the beneficial effects of which were soon manifested in the increased tone of the cutaneous capillaries, the blood returning to them more rapidly after pressure on the skin. This was not so promptly produced by cupping, which I entirely abandoned for the blister. The pains in the head and back would also subside, and, in some cases, strangury ensue, a certain sign of the breaking up of the disease.

The mercurial fetor was perceived in a few cases in thirty-six hours, and in many the gums were swollen in from two and a half to four days. It was only then that thin gruels were given, unless previously required by the protraction of the case. When indicated, revulsives to the extremities, to the inside of the thighs, and nape of the neck were employed; but the chief object was to produce ptyalism, which I then considered the safeguard of the patient. I have, however, seen cases in which black vomit was brought on, after it was well established, by the administration of a mild cathartic.

When, instead of the mercurial action on the gums, a passive hemorrhage ensued, the calomel was omitted, and the following mixture given: Peruvian bark, ℥ss., boil in ten ounces of water for about fifteen minutes; then

infuse in the hot decoction two drachms of serpentaria Virginiana, and, when cold, add to the mixture one to two drachms of elixir vitriol, according to the degree of the hemorrhage; two tablespoonfuls to be given every two hours. This mixture acted so well that I began to consider the hemorrhage as a sign that the case had become manageable. I have seen black vomit in several instances appear during its continuance; but about three-fourths recovered, although some patients in whom it had continued for seven and nine days, were first reduced to an almost complete state of anemia. Nitrate of silver, chloride of soda and various astringent lotions were found of no avail to check the bleeding; ice alone seemed to produce a temporary contraction of the vessels, and diminished the fetor of the putrid blood better than the chloride of soda. The diet was in this stage increased, and animal broths given freely.

The loss by this treatment was one in seven; it must, however, be remembered that the first cases of the epidemic are the least manageable, probably from the high susceptibility of those first attacked to the influence of the malaria; on the other hand, the sick, during the cold days of October, also present obstinate cases, and, at the best, frequently run into typhoid fever. None under the mercurial treatment recovered after black vomit. In one child, five years old, and in a lad fifteen years of age, who had been rendered almost exsanguineous by previous repeated attacks of intermittent fever, sloughing of the cheek ensued during the prostration of the vital forces by the passive hemorrhage. In a Pole, also, to whom a drunken nurse had given 120 grains of calomel, by mistake, in twelve hours, and in whom the rapid occurrence of hemorrhage prevented the administration of even a mild aperient, exfoliation of some portions of the alveolar processes took place during convalescence. On the whole, it was clearly evident that calomel in the last stage was injurious, and caused black vomit in cases which, if treated even by *la mèdecine expectante*, might have got well. Even during convalescence, a mild dose of Rochelle salts often brought on a return of fever and a train of dangerous symptoms.

Thus warned of the injurious effects of all irritants of the digestive tube in the third stage, I modified the treatment in my other patients. After the first free bleeding, and the purgation by calomel and Epsom salts, and the application of the blister to the upper half of the abdomen, the calomel was continued every two hours in five grain doses, until the peculiar green tinge in the alvine evacuations indicated its action on the liver. Its use was then abandoned, and the bowels were kept free by the use of enemata of warm water throughout the disease and during convalescence. The following mixture was given after the calomel had been stopped, and, notwithstanding that, soreness of the eyeballs and frontal headache still in a measure remained, they being sympathetic of the gastric affection:

℞.—Bi-carbonate of Soda, ℥ss.
*Paregoric Elixir, ℥ss.
Gum Water, ℥vi. } Give two tablespoonfuls every two hours.

The sponging of the surface while hot and dry, the free use of ice, and the *diète absolue* were prescribed, as in the mercurial treatment, during the first and second stages. Under the soda mixture, the prominent symptoms soon began to subside. The soreness of the eyeballs, forehead, limbs and back was relieved; the skin became soft, and the patient no longer asked for the cold affusions, which before were peculiarly grateful to him; the tongue lost its red and pointed tip and edges, and if previously of a shining red, became covered with a white soft fur, and the alvine evacuations became freely mixed with yellow bile. In the last stage, when the symptoms threatened the secretion of black vomit, warm poultices, mixed with mustard, if the blistered surface had healed, were applied to the abdomen, and sinapisms to the calves of the leg; I have thought that much advantage was obtained by blisters to the inside of the upper third of the thighs.

If black vomit appeared, the same treatment was pursued, except that the patient, if he had previously been allowed gruels, was restricted to the use of ice in rather moderate quantities to quench his thirst, and the soda mixture was given in one tablespoonful dose every hour, the quantity being diminished one-half for children. In the latter, the thirst for about six hours was intense, but a tablespoonful of water renewed the vomiting, and the little sufferers were allowed to allay their thirst only by sucking pieces of ice enveloped in linen. Twelve hours after the cessation of the black vomit, boiled gum-water was given, and the diet very gradually increased; the recovery was generally rapid and perfect.

Under this last treatment one died in nine, and seven recovered after having had black vomit: of these four were children under six years, one 12 years and two adult men; in the last the matter was of a deep bistre colour freely mingled with mucus; in all the stools had become bilious before the black vomit appeared. Although several cases, in which the black grumous matter had been voided by the intestines, recovered, I have never seen one, in which it was at the same time ejected from the stomach, recover.

When called to a patient in the second stage, if the pulse did not permit bleeding, only ten or fifteen grains of calomel were given, and the soda mixture prescribed, the bowels being opened by enemata alone. In the case of the intoxicated Pole, nothing but the soda mixture was given, and he got well under its use, with enemata and revulsives. The preceding treat-

* The paregoric was made by macerating fourteen days, in two pints of diluted alcohol, opium, ℥j; Benzoic acid, ℥j; camphor, ℈ij, without the addition of honey, oil of aniseed or liquorice.

ment was also successful, this season, in a case of congestive fever attended by remissions common to our marsh lands, which occurred at the corner of Meeting and Line streets, the northern extremity of the city. The patient, a mulatto girl, aged eleven years, threw up several ounces of black vomit during a paroxysm of the fever on the fourth day. It was checked by the soda mixture, and another remission occurring, fifteen grains of quinine were given in three hours, which stopped the fever, and the patient recovered slowly but steadily. Very few of the patients had their gums affected by the calomel, and the convalescence was more rapid than under the mercurial treatment.

In the epidemic of 1839, which was not attended by hemorrhage, in about fifty well-marked cases, the loss was rather less than one in nine. Mingled with it was an ephemeral fever, closely resembling the other in the suffused eyes, pain in the head, back and limbs, but wanting the glassy appearance of the eye, and the anxious cast of the features, and yielding readily to a dose of magnesia and salts in twenty-four hours.

I attended several patients this year who had passed through the preceding epidemic with impunity. I have only twice attended the same patient for yellow fever; one had it after an interval of two years, and was delirious in both attacks; the other, an Irish woman, died, after an abortion, in the second year; another, whom I attended, and who died in a collapse, I was informed had had it the preceding year. In 1838, some of the patients, who were very sick, had resided in the city six and eight years.

In all the cases the free bleeding was very instrumental in breaking up the fever, and the blister in restoring tone to the congested vessels. Under the mercurial plan, the patients got well in spite of the purgation in the second stage; while by the other plan, the minimum doses of paregoric calmed the peculiar irritable state of the mucous membrane found in this fever, and prevented, frequently, the occurrence of black vomit; a larger dose would act on the brain and increase the tendency to congestion of that organ.

ART. IV.—*Observations on the Pulse of the Insane, made by the Physicians of several Lunatic Asylums in the United States.* Collected, arranged and analyzed by PLINY EARLE, M. D., Physician to the Bloomingdale Asylum, New York.

DESIROUS of instituting a comparison between the pulse of the sane and that of the insane, in regard to its relative velocity in those two classes, a comparison founded upon more extensive data than any heretofore attempted,

I, a few months since, addressed letters to the physicians of several prisons, penitentiaries and asylums for the insane, requesting them to furnish me with original observations made upon the inmates of the respective institutions with which they are connected. Having received no returns from any establishment intended for adult persons enjoying mental health, my object, so far as the comparison alluded to is concerned, remains unaccomplished. But, inasmuch as several of the medical gentlemen having charge of Lunatic Asylums complied with my request, and thus placed in my hands a mass of materials of no inconsiderable importance, I have thought it best, as far as practicable, to carry out my original intention. Accordingly, adding to their observations those made by myself, at the Bloomingdale Asylum, I have arranged and analyzed the whole in such manner as to impart some information in regard to the pulse of the insane, and to furnish one term of the comparison which I had hoped to establish.

All the observations upon the pulse herein recorded were made during the month of May; so that, in relation to season and temperature, the persons examined were placed in a condition as nearly identical as possible. In regard to some other conditions, and among them the treatment, both medical and moral, which must necessarily have a certain degree of influence upon the rapidity of the circulation, it was of course impossible to place the persons upon an equality.

The medication at some institutions is more sedative and narcotic than at others, and the habits of the patients in respect to bodily activity and exercise vary to a considerable extent. These circumstances must modify the velocity of the pulse.

Before proceeding farther, it is necessary to make a few explanatory remarks particularly intended for the medical gentlemen whose observations are herein collected.

The detailed method originally proposed for this article was necessarily relinquished from the great diversity of forms adopted in the returns; but, as the observations are now published, perhaps their object, so far as the insane are connected with the subject, may be as satisfactorily attained as it could have been under other circumstances. In arranging the several tables, some of them have undergone a considerable alteration in order to bring the whole as nearly as possible into uniformity. This has been done without affecting the results of the numbers therein contained.

The tables are arranged in the alphabetical order of the names of the physicians by whom the observations were made.

Observations on the Pulse of twenty-one Insane Persons. By John R. Allen, M. D., Physician to the Kentucky Lunatic Asylum.

Men.

No.	Age.		Time	1st day	2d.	3d.	4th.	5th.	6th.	7th.	8th.	Total	Ave.
1	25	a	M	103	82	92	86	104	96	98	96	757	94.6
			A	96	84	98	92	96	95	96	92	749	93.6
2	27	ch	M	92	84	74	80	76	94	90	92	682	85.2
			A	92	88	76	82	74	96	94	90	692	86.5
3	25	ch	M	62	68	86	76	76	60	68	75	571	72.1
			A	66	70	80	80	68	70	62	66	562	70.2
4	40	ch	M	80	72	64	86	76	60	72	76	586	73.2
			A	82	75	66	80	74	65	78	76	596	74.5
5	27	ch	M	66	58	72	64	66	68	88	76	558	69.3
			A	62	67	70	65	70	72	72	68	546	68.2
6	24	ch	M	90	82	97	114	80	76	80	76	695	86.8
			A	90	85	90	96	88	75	83	81	688	86.
7	31	ch	M	74	56	70	90	88	70	68	68	584	73.
			A	90	62	62	92	85	72	72	70	605	75.6
8	23	ch	M	67	75	74	64	76	75	74	70	575	71.8
			A	68	70	75	65	75	80	75	72	580	72.5
9	22	ch	M	70	90	78	66	72	80	74	80	610	76.2
			A	68	92	84	70	84	78	75	72	623	77 8

Laboring Men.

No.	Age.		Time	1	2	3	4	5	6	7	8	Total	Ave.
1	28	ch	M	68	73	75	76	73	72	73	68	578	72.2
			L	75	74	78	81	85	80	76	73	621	77.6
			A	70	70	73	74	76	81	71	74	589	73.6
			M	72	74	76	75	80	75	74	73	599	74.8
2	45	ch	L	79	77	80	80	80	81	73	79	629	78.6
			A	73	71	73	72	72	74	70	70	575	71.8
			M	66	74	75	74	74	72	75	68	578	72.2
3	26	ch	L	73	71	81	73	76	75	78	73	600	75.
			A	70	72	72	75	72	73	70	71	575	71.8
			M	75	74	75	78	56	84	70	72	584	73.
4	26	ch	L	80	80	78	91	72	80	73	83	637	79.6
			A	71	68	68	73	71	72	71	71	565	70.6

a marks the acute or recent cases.
ch " chronic "
M " morning observations.
A " afternoon "

Women.

No.	Age.		Time	1	2	3	4	5	6	7	8	Total	Ave.
1	60	a	M	85	82	80	90	72	74	76	72	631	78.8
			A	80	84	82	94	80	72	72	72	636	79.5
2	27	ch	M	93	82	81	84	85	81	80	81	667	83.3
			A	81	80	84	80	90	82	80	82	659	82.3
3	35	ch	M	60	84	80	72	68	75	76	80	595	74.3
			A	72	85	76	76	72	76	80	82	619	77.3
4	50	ch	M	79	88	92	68	69	76	80	86	638	79.7
			A	80	90	90	75	75	80	76	84	650	81.2
5	38	ch	M	73	80	80	84	84	82	88	84	655	81.8
			A	74	83	86	80	82	84	84	84	657	82.1
6	35	ch	M	75	72	76	64	72	73	76	76	584	73.
			A	76	74	80	70	72	70	76	74	592	74.
7	22	ch	M	78	88	100	90	92	80	90	90	708	88.5
			A	75	90	92	90	78	82	86	90	683	85.3
8	32	ch	M	80	82	85	90	91	84	80	80	672	84.
			A	82	80	85	90	90	83	82	76	668	83.5

The averages in this table are as follows, viz.:—

Men, not laboring,	1 recent case.	Morning,	94.6	Afternoon,	93.6
" "	8 chronic cases.	"	75 9	"	76.4
Men, laboring,	4 chronic cases.	"	73.7	"	72.2 at work, 77.7.
Women,	1 recent case.	"	78.8	"	79.5
"	7 chronic cases.	"	80.7	"	80.8

Observations on the Pulse of fifty Insane persons. By WILLIAM M. AWL, M. D., Physician to the Ohio State Lunatic Asylum.

With the prompt aid of my assistant, R. I. Patterson, M. D., we commenced our observations upon twenty-five male and the like number of female patients, on the first day of May last. The cases were selected with care, according to our best judgment, from the hundred and fifty in the institution; but a number were necessarily taken from those who are continually under the influence of medicines calculated to subdue excitement and allay irritation, which would, in some instances, undoubtedly lessen the action of the heart and arteries, and abate the velocity of the pulse. This was matter of regret, but it was perfectly unavoidable in the extensive range we have taken.

Our examinations were made twice a day, the first between eight and eleven in the morning, when every patient was up and stirring round; the second between nine and eleven in the evening, after all the patients had retired and were in their beds. They were made with unusual care, with good watches, and invariably continued, in each case, until we were fully satisfied of the true and undisturbed condition of the pulse; and this was rarely the case without a full counting of the entire minute thrice repeated, and always after every apparent agitation or symptoms of fear had entirely subsided.

According to our observations, the insane pulse appears for the most part to be quick in the stroke, deficient in force and volume, and highly nervous, so as to be easily disturbed. It is frequently irregular in regard to frequency, but it seldom intermits, and is neither full, strong, corded, nor bounding.

The stroke appeared to be quicker in the morning, and slower and rather fuller in the evening when the patient was at rest.

In many patients, talking, laughing, singing, moving the limbs, and twisting about the body, will quicken the action of the pulse: so will deep sighing and occasionally also emotions of the mind, and especially thinking or conversing upon the subject of their delusions. It is, in fact, a difficult pulse to examine, and its true condition may easily remain undiscovered if the patient is not allowed to become perfectly calm, and the examination is not very carefully made.

We have examined but one or two recent cases in a state of excitement during these observations, but there can be but little doubt that, under such circumstances, there will be increased frequency averaging from eighty to ninety beats in the minute.

1. CASES OF LESS DURATION THAN ONE YEAR.

No.	Age	Sex	Disease	Remarks	1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
1	23	Male,	Mania, - - - - -	*a*	105	108	105	78	88	80	74	81	88	80	80	82	83	70	88	80	82	75	94	86	88 7	82.0		
2	35	Male,	do. - - - - -	*a*	88	84	86	75	86	76	83	77	87	80	79	88	90	80	77	79	85	75	78	75	83·9	79.		
3	45	Male,	do. - - - - -		47	48	51	41	50	44	48	50	55	46	44	52	60	52	55	50	72	56	50	56	53·2	49.5		
4	27	Male,	Melancholia, - - - -	*b*	65	60	55	50	68	48	47	54	53	54	56	60	60	56	59	57	56	55	55	54	57 4	54.8		
5	28	Male,	do. - - - - -		74	63	75	83	75	62	64	71	78	68	68	74	69	65	81	62	65	55	70	61	78.	66.4	72.2	66.3
6	25	Female,	Melancholia, - - - -	*a*	72	72	66	72	68	64	61	57	64	64	64	66	60	64	64	62	61	62	68	68	64.8	65.1		
7	22	Female,	Mania, - - - - -		75	63	86	84	80	80	78	81	77	63	84	60	80	77	80	94	92	96	90	81	82.2	78.		
8	25	Female,	do. - - - - -		72	82	81	68	80	70	67	64	71	71	75	70	68	69	67	66	72	74	69	72	72.2	70.6		
9	41	Female,	Melancholia, - - - -	*a*	72	68	72	70	68	72	64	66	66	68	78	72	80	80	72	70	72	72	71	72	71.5	71.		
10	42	Female,	do. - - - - -		70	79	73	69	80	86	66	70	72	68	72	74	76	65	72	65	71	63	70	68	72.2	70.7	72.5	71.8

2. CASES FROM ONE TO TWO YEARS' DURATION.

1	50	Male.	Mania, - - - - -	*a*	78	85	77	72	78	78	78	78	78	80	80	81	74	84	79	82	72	79	84	79	77.8	79.8		
2	45	Male,	Homicidal, - - - - -	*a*	48	54	47	52	59	46	49	60	63	52	60	50	64	54	56	56	59	48	50	51	54.6	52.3		
3	36	Male,	Mania, - - - - -	*a*	72	58	79	58	76	62	68	69	74	64	74	76	75	64	80	75	88	84	73	64	75.9	67.4		
4	23	Male,	Melancholia, - - - -		70	52	71	48	64	48	60	48	78	43	68	56	68	49	72	47	68	54	74	55	69.3	50.5		
5	50	Male,	Monomania, - - - -	*a*	75	74	74	76	99	76	73	72	74	72	75	79	65	62	71	74	70	66	74	76	75.	72.7	70 1	64 5
6	30	Female,	Mania, - - - - -		82	89	82	75	78	68	120	81	84	76	76	72	81	68	80	68	76	65	106	81	86.5	74.3		
7	36	Female,	do. - - - - -		79	113	80	80	80	110	79	98	77	84	75	104	90	83	78	96	81	88	84	95	80.3	95.1		
8	56	Female,	do. - - - - -	*a*	65	64	67	56	66	59	60	63	61	60	62	56	68	59	69	60	66	63	64	62	64.8	60.2		
9	42	Female,	Melancholia, - - - -		69	60	74	60	72	62	74	64	73	70	72	65	76	70	76	68	60	68	68	66	71.4	65.3		
10	35	Female,	Suicidal, - - - - -	*a*	75	60	72	68	73	58	68	60	72	59	72	60	64	74	69	61	65	64	85	72	71.5	63.6	74.9	71.7

3. CASES FROM TWO TO FIVE YEARS' DURATION.

No.	Age	Sex	Disease	Remarks	1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
1	23	Male,	Mania, - - - -		67	57	70	56	66	60	74	56	66	56	64	60	60	59	64	57	68	52	62	57	66.1	57.		
2	34	Male,	do. - - - -	*b*	55	53	61	51	60	54	61	62	61	60	56	57	64	60	64	52	72	64	61	58	61.6	57.1		
3	48	Male,	do. - - - -		63	60	76	60	69	55	67	54	62	54	66	60	67	59	69	56	64	56	61	60	66.4	57.4		
4	29	Male,	do. - - - -	*b*	65	56	74	64	78	56	102	63	64	56	72	62	72	60	78	60	68	57	65	60	73.8	59.4		
5	31	Male,	Melancholia, - - -		80	72	83	65	90	60	64	56	70	56	77	64	72	60	70	58	68	57	77	68	75.1	61.	68.6	58.3
6	29	Female,	Homicidal, - - -		100	84	108	84	92	85	95	78	100	82	94	72	80	77	90	91	88	76	84	80	93.1	81.		
7	30	Female,	Mania, - - - -		87	69	90	68	81	65	96	64	100	67	88	62	94	57	88	68	90	65	88	7[illegible]	90.2	65.7		
8	34	Female,	do. - - - -		78	80	95	76	90	78	82	84	90	69	108	88	82	80	102	88	84	80	88	8[illegible]	89.9	79.3		
9	51	Female,	do. - - - -		68	60	73	59	68	59	70	64	68	60	64	68	64	61	68	56	68	57	62	5[illegible]	67.3	60.		
10	51	Female,	do. - - - -		85	80	100	84	80	79	98	86	85	80	80	94	96	70	78	72	81	77	80	7[illegible]	86.3	79.2		
11	54	Female,	do. - - - -		86	80	78	89	80	80	88	80	80	74	74	80	88	76	80	78	78	72	81	8[illegible]	80.7	79.5	84.6	74.1

4. CASES FROM FIVE TO TEN YEARS' DURATION.

1	33	Male,	Homicidal, - - -	*a*	80	66	64	52	84	64	77	63	71	68	75	67	64	56	68	59	72	56	71	85	71.6	63.6		
2	38	Male,	Mania, - - - -		86	60	92	70	81	70	90	92	72	76	80	79	92	79	81	83	96	72	87	75	86.	75.6		
3	33	Male,	do. - - - -	*b*	72	65	78	76	66	64	108	70	81	56	74	74	68	59	68	68	63	61	68	82	74.6	67.5		
4	45	Male,	do. - - - -		70	64	65	73	70	72	74	72	90	72	72	72	56	68	72	61	51	71	60	72	68.	69.7		
5	58	Male,	do. - - - -		63	64	63	60	65	66	63	60	64	60	72	61	59	60	58	57	55	58	64	63	62.6	60.9	72.5	67.4
6	29	Female,	do. - - - -		90	65	89	66	91	70	98	72	88	64	80	59	88	75	81	80	98	72	78	90	88.1	71.3		
7	41	Female,	Homicidal, - - -		117	100	102	92	100	90	88	68	80	72	72	84	86	70	62	70	85	69	84	76	89.6	79.1		
8	43	Female,	Mania, - - - -		78	75	98	74	100	66	86	62	95	72	84	60	78	74	79	80	69	60	80	90	84.7	71.3		
2	52	Female,	do. - - - -		72	72	70	63	78	64	65	56	72	73	68	62	66	64	68	56	62	64	61	58	68.2	63.2		
10	48	Female,	Melancholia, - - -		75	70	85	71	79	70	80	72	79	67	76	65	80	65	72	66	76	74	85	69	78.7	68.9	81.8	70.7

5. CASES OF MORE THAN TEN YEARS' DURATION.

No.	Age	Sex	Disease	Remarks	1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
1	33	Male,	Mania, -	-	62	50	65	57	84	48	50	48	48	46	68	60	72	52	55	47	62	45	64	64	63.	51.7		
2	33	"	Dementia,	- *b*	70	74	79	85	90	59	75	60	68	60	70	60	64	72	69	60	70	84	84	80	73.9	69.4		
3	38	"	Mania, -	-	76	78	88	76	98	95	97	108	79	80	95	87	87	80	85	81	80	76	84	86	85.3	85.7		
4	46	"	do. -	-	92	88	93	94	100	80	95	86	98	88	89	78	96	94	100	86	88	78	96	97	94.7	87.		
5	52	"	do. -	- *a b*	59	55	50	54	49	58	50	54	51	54	50	53	45	48	49	64	52	55	55	51	50.5	54.6	73.5	69.7
6	32	Female,	do. -	- *a*	100	80	100	75	75	80	76	87	87	75	67	80	80	73	74	72	77	68	75	74	90.9	76.4		
7	34	"	do. -	-	74	74	68	65	80	68	68	64	71	69	70	64	70	60	72	65	65	70	68	66	70.6	66.5		
8	46	"	do. -	-	85	79	113	88	98	87	92	80	86	88	123	84	106	80	88	96	99	88	100	86	99.	80.3		
9	50	"	do. -	-	76	76	76	100	81	91	76	70	76	76	85	90	70	84	84	104	92	76	74	72	79.	83.9	84.8	76.8

As a general rule, the first minute cannot be depended on in counting by the watch. If the second and third minute agree, the true condition of the pulse will probably be ascertained. We found the pulse rise and beat faster in a few cases after the first minute, but in more cases it fell and became

slower. In some individuals it appeared almost impossible to count the pulse over twice alike. Notwithstanding many trials, with an apparent calmness of the patient, it would be 88, 82, 75 or 80, &c., appearing always to vary a few beats with every trial. In a few cases the measure of the beat would suddenly appear to change after the count commenced, so that it would be necessary to stop and begin the examination again. This was different from irregularity of the pulse, in which there would be a sudden increase of frequency for a few seconds, and then a fair return to its common standard at the time.

Those cases in the tables marked *a*, were under the influence of medicines which probably lessened the frequency of the pulse to some extent.

Those marked *b*, practice masturbation. In such patients we find the temper and feelings extremely variable. The pulse is also variable. By reference to the tables, it will be observed that they all average below the medium standard of velocity, and I think this is not uncommon in masturbation cases.

In case No. 1, in the first table, there evidently was agitation in the first three or four examinations. The person has since recovered, and informed us that he was under the most dreadful feelings of apprehension that we were preparing to take his life. We were not aware of this at the time, and supposed we had given him no occasion of alarm. This shows the necessity of caution in taking the pulse of the insane.

Case No. 5, table second, is the most perfect example of monomania I have ever known. This man was a religious enthusiast of the Miller cast, and, at the time of these observations, was daily expecting special and awful judgments from God upon this immediate vicinity.

Case 10, table second, is the most determinedly and perseveringly suicidal person we have ever known in this or any other institution.

No. 3, table fifth, is a furious madman, requiring confinement in a strong room at all times.

The homicides are all strongly marked cases. They were specially selected, and the examinations conducted with extraordinary attention and carefulness. Case No. 1, table fourth, is one of the most impulsive and dangerous men we have ever had under our care. Upon the last occasion that I proceeded to examine his pulse, I found him in bed, awake and apparently composed. As I attempted to place my fingers upon his wrist, he was suddenly taken with the homicidal impulse in the most frightful manner. His frame was convulsed, he screamed awfully, and instantly struck me with great violence, exclaiming, while he attempted to repeat the blow, that he was determined to kill me. I was accompanied by an attendant, and very little disturbed, so that I immediately thought of the importance of taking his pulse in this excited condition, which I did as soon as I could persuade him to hold still; and, though he continued to talk and threaten, I counted it distinctly for three minutes, and ascertained it to be

exactly eighty-five strokes to the minute. He was wonderfully agitated and excited, and repeatedly averred that he certainly would be the death of me. A more frightful man there could not be.

The impulsive excitement was the more surprising, as he had shown the most perfect willingness to be examined upon every former occasion.

I also have the best reason in the world for considering No. 2, table fourth, as a homicidal case, as he once threw a large axe at my head with the full intention of knocking out my brains. It was impulsive, and it was not his fault that he did not succeed in his violent attempt.

Meteorological journal kept at the Ohio State Lunatic Asylum during the period occupied in making the foregoing observations on the pulse.

	BAROMETER.				THERMOMETER ATTACHED.				THERMOMETER DETACHED.				
May, 1844.	Sun Rise	9 A. M.	3 P. M.	6 P. M.	Sun Rise	9 A. M.	3 P. M.	6 P. M.	Sun Rise	9 A. M.	3 P. M.	6 P. M.	Rain
1	28.98	29.00	28.91	28.86	70	72	77	78	66	72	79	78	This night 1-8 inch.
2	28.84	28.86	28.86	28.85	72	75	78	78	64	72	78	76	This night 3-4 inch.
3	28.85	28.88	28.82	28.82	72	74	74	76	61	72	74	73	
4	28.92	28.93	28.90	28.90	66	68	72	72	50	62	72	66	
5	28.94	28.94	28.89	28.82	62	70	72	71	45	60	78	71	This night 1-8 inch.
6	28.69	28.70	28.84	28.88	67	66	67	68	57	58	65	62	
7	29.00	29.05	29.02	29.01	61	64	74	73	45	64	74	73	
8	28.92	28.94	28.97	28.99	68	74	72	74	58	71	70	69	
9	29.10	29.13	29.16	29.16	64	67	73	72	48	65	71	69	
10	29.22	29.23	29.15	29.12	65	67	80	80	50	68	80	82	

Observations on the Pulse of thirty-nine Insane persons, at the McLean Asylum. By LUTHER V. BELL, M. D., Physician to that Institution.

I. MALES; DISEASE, ACUTE.

No.	Age	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Total	Average
1	72	80	88	72	88	72	100	88	76	76	88	828	82. 3
2	21	104	96	100	112	100	100	84	88	80	100	964	96. 4
3	50	88	96	100	100	100	96	104	100	84	92	960	96.
4	24	76	80	72	88	68	80	76	72	100	84	796	79. 6
5	58	76	100	96	76	84	84	72	68	84	84	824	82. 4
6	26	68	88	80	72	84	88	72	72	72	80	766	76. 6
7	80	68	68	68	72	72	72	72	72	72	76	692	69. 2
8	25	100	100	88	76	72	60	64	72	56	76	764	76. 4
9	60	100	100	100	96	96	88	72	92	88	96	938	93. 8
10	50	68	80	72	80	80	72	80	88	112	84	816	81. 6
Total, and total average, - - - - - -												8348	83.48

II. FEMALES; DISEASE, ACUTE.

No.	Age	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Total	Average
1	37	80	88	84	100	100	100	80	84	80	76	872	87.2
2	25	76	76	80	100	80	76	84	88	84	80	824	82.4
3	30	60	76	72	72	64	60	72	64	72	76	688	68.8
4	22	76	68	72	72	72	68	72	72	72	80	724	72.4
5	55	76	72	72	80	80	76	80	80	88	88	792	79.2
6	29	80	100	72	88	72	72	80	68	72	76	780	78.
7	54	100	70	88	88	88	72	112	88	88	84	878	87.8
8	37	80	84	92	88	84	80	76	84	80	80	828	82.8
9	55	56	60	76	72	60	56	72	64	64	64	644	64.4
10	19	96	88	84	72	88	80	88	80	96	88	860	86.
Total, and total average, - - - - - -												7880	78.8

III. MALES; DISEASE, CHRONIC.

No.	Age	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Total	Average
1	40	72	80	84	88	80	80	88	84	112	84	852	85. 2
2	55	96	96	104	96	96	104	96	96	100	88	972	97. 2
3	50	80	88	84	84	88	80	72	76	88	76	816	81. 6
4	60	60	60	64	60	60	68	60	64	64	64	624	62. 4
5	40	84	76	80	80	88	100	84	80	100	104	876	87. 6
6	49	64	64	72	78	72	68	64	80	76	76	714	71. 4
7	53	88	88	64	80	80	72	80	80	80	100	812	81. 2
8	37	84	96	68	72	76	72	68	64	76	80	756	75. 6
9	27	84	88	100	88	96	80	100	80	84	92	892	89. 2
10	30	72	84	120	88	88	100	104	104	64	56	880	88.
Total, and total average, - - - - - -												8194	81.94

IV. FEMALES; DISEASE, CHRONIC.

No.	Age	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Total	Average
1	44	108	88	72	80	80	80	84	80	76	80	828	82. 8
2	42	96	72	72	80	100	100	80	72	72	100	844	84. 4
3	30	76	72	72	80	84	72	76	76	80	76	764	76. 4
4	46	72	84	80	80	80	88	100	92	88	80	844	84. 4
5	38	76	68	76	100	80	88	80	72	76	72	788	78. 8
6	35	80	72	72	80	76	76	80	80	72	76	764	76. 4
7	23	100	80	88	100	100	112	108	88	120	104	1000	100.
8	40	72	68	72	72	104	68	72	68	112	88	796	79. 6
9	62	74	80	80	74	72	76	80	76	72	72	756	75. 6
Total, and total average, - - - - - -												7384	82.44

"These cases are presented only in regard to the one fact of *pulse*, irrespective of medical measures, to which some of them are now subject." —*Letter of Dr. Bell.*

Observations on the Pulse of fifteen Insane persons in the New Hampshire State Lunatic Asylum. By GEORGE CHANDLER, M. D., Physician to that Institution.

	No.	Age	Time insane	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Total	Average Acute	Average Chronic
MEN.	1	31	4 months	47	54	48	46	52	56	51	54	54	60	522	52.2	
	2	50	2 months	84	68	64	71	68	54	61	60	58	54	642	64.2	
	3	24	2 years	85	72	86	76	88	61	62	62	60	85	737		73.7
	4	53	19 years	54	61	60	58	54	60	54	84	54	60	579		57.9
	5	45	8 years	76	69	65	54	60	60	84	68	65	64	665		66.5
	6	54	18 years	52	60	68	62	80	54	55	66	58	61	616		61.6
	7	23	18 years	78	70	72	84	60	60	83	78	72	61	718		71.8
	8	57	3 years	49	100	54	86	78	55	62	84	51	59	678		67.8
	Total average,			-	-	-	-	-	-	-	-	-	-		58.2	66.4
WOMEN.	1	37	4 months	70	90	72	68	79	72	61	75	66	72	725	72.5	
	2	65	10 months	80	72	67	76	78	76	67	72	72	73	733	73.3	
	3	15	5 months	82	84	108	77	68	62	75	65	66	58	745	74.5	
	4	54	3 months	72	72	75	70	72	70	71	66	78	72	733	73.3	
	5	51	4 years	73	84	72	68	78	72	71	72	70	79	739		73.9
	6	54	1 year	84	96	84	83	108	96	96	84	93	98	922		92.2
	7	52	6 years	80	72	100	94	94	98	108	88	93	95	922		92.2
	Total average,			-	-	-	-	-	-	-	-	-	-		73.4	86.1

"It is singular that the recent cases should have the slowest pulse. It must be accidental, as these were all the cases noted, except one man who had, the past winter, lost his foot by frost, and the stump is yet discharging purulent matter from the whole surface. His pulse ranged about 96 per minute."—*Letter from Dr. Chandler.*

Observations on the Pulse of fifty-eight Insane persons. By PLINY EARLE, M. D., Physician to the Bloomingdale Asylum.

I. CASES OF LESS DURATION THAN ONE YEAR.

No.	Age	Sex	Disease	Remarks	1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
1	21	Male,	Mania, quiet, - - -	*a*	72	66	72	60	60	60	72	64	72	66	73	57	80	60	90	65	72	66	73	57	73.6	62.1		
2	27	"	" " - - -	*a b*	102	76	90	84	102	84	104	84	100	70	96	79	87	73	84	80	96	78	92	91	95.3	79.9		
3	29	"	" some excited, - -	*a*	86	60	78	76	116	55	96	65	102	56	96	72	85	53	76	49	88	60	102	60	92.5	60.6		
4	32	"	" quiet, - - -	*a*	82	54	80	56	86	56	94	60	80	64	76	76	84	73	72	66	76	60	70	79	80.	64.4		
5	36	"	Melancholia, suicidal, - -	*a*	108	66	86	54	102	64	106	62	96	64	84	72	94	66	114	84	108	72	99	67	99.7	67.1		
6	42	"	" " - -	*a*	86	54	90	54	90	62	96	61	85	66	78	58	82	57	90	56	72	72	68	60	83.7	60.		
7	42	"	Mania, quiet, - - -	*a*	68	64	60	57	62	54	74	60	72	48	89	53	72	66	68	55	85	60	74	66	72.4	58.3		
8	46	"	Melancholia, - - -	*a*	96	96	120	84	104	78	108	84	86	84	120	83	84	84	114	85	100	95	80	87	101.2	86.0		
9	46	"	Mania, lethargic, - - -		84	72	80	75	82	79	88	72	84	82	88	88	78	78	83	84	78	96	95	85	84.	81.1		
10	55	"	Melancholia, suicidal, - -	*a*	76	72	82	64	84	63	64	64	76	66	85	72	72	72	72	69	84	80	90	72	78.5	69.4	86.1	68.9
1	16	Female,	Mania, lethargic, - - -	*a*	78	84	76	64	72	60	76	72	72	64	64	66	78	69	65	67	72	78	76	84	72.9	70.8		
2	23	"	" some excited, - -	*a*	94	89	64	84	84	72	72	77	76	78	78	80	97	72	60	79	95	96	81	72	80.1	79.9	76.5	75.2

II. CASES FROM ONE TO TWO YEARS IN DURATION.

1	28	Male,	Mania, quiet, - - -		92	72	92	64	96	72	96	56	65	64	72	60	80	69	76	60	78	72	88	78	83.5	66.7	83.5	66.7
1	35	Female,	" " - - -	*a*	72	75	80	76	78	86	84	73	96	72	76	90	93	75	79	83	91	90	96	84	84.9	80.4		
2	42	"	" " - - -	*a*	72	64	62	60	76	66	82	58	86	60	66	54	61	54	54	56	60	60	71	60	69.	59.2		
3	46	"	" " - - -		84	74	73	78	72	68	96	82	78	82	87	84	95	83	95	81	80	80	102	88	86.2	80.	80.3	73.2

a Cases under medical treatment.

b In these cases the patient practices masturbation.

III. CASES FROM TWO TO FIVE YEARS IN DURATION.

No.	Age	Sex	Disease	Remarks	1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
					M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
1	25	Male,	Mania, quiet, - - -	*b*	96	68	74	68	96	60	105	76	104	72	96	72	102	54	84	72	90	80	95	80	94.2	70.2		
2	31	"	" " - - -		86	60	101	68	64	66	72	68	96	64	68	60	78	64	96	64	90	84	108	56	85.9	65.4		
3	36	"	" " - - -		96	56	78	60	104	66	88	60	96	63	102	63	91	53	96	68	98	78	89	66	93.8	63.2		
4	39	"	Melancholy, suicidal, - -	*a*	68	62	82	54	72	57	70	60	66	54	80	56	72	64	84	66	96	56	87	72	77.7	60.1		
5	52	"	Mania, excitable, - - -	*a*	96	76	106	78	84	72	90	80	108	72	102	56	81	78	96	61	79	72	102	72	94.4	71.7	89.2	66.1
1	23	Female,	" hysterical, - -		84	72	90	88	108	84	84	80	100	93	96	96	90	90	90	104	101	96	81	100	92.4	90.3		
2	35	"	" quiet, - - -		74	84	83	69	75	96	84	80	94	69	85	76	85	78	83	84	88	76	82	81	83.3	79.3	87.8	84.8

IV. CASES FROM FIVE TO TEN YEARS IN DURATION.

1	29	Male,	Mania, quiet, - - -	*b*	88	56	96	52	74	54	96	52	84	52	96	48	97	53	72	64	65	60	72	55	84.	54.6		
2	33	"	Dementia, - - - -		94	60	78	60	80	56	81	48	96	48	69	54	78	49	90	57	80	51	85	60	83.1	54.3		
3	34	"	Mania, cataleptic, - -		68	48	82	60	92	52	72	52	76	48	85	52	95	48	85	57	72	48	76	55	80.3	52.		
4	37	"	" quiet, - - -		78	76	78	66	72	72	78	60	68	72	84	68	68	60	96	72	79	65	78	63	77.9	67.4		
5	39	"	Dementia, - - - -		84	47	66	60	56	56	96	60	84	54	96	60	66	68	90	60	83	73	102	69	82.3	60.7		
6	39	"	" - - - -		76	66	80	60	88	65	80	67	80	60	83	61	78	63	84	83	78	60	90	60	83.7	64.5		
7	46	"	Mania, quiet, - - -		94	58	90	60	98	60	81	72	84	66	80	64	84	57	78	60	93	65	92	84	87.4	64.6	82.6	59.7
1	24	Female,	" " - - -		71	72	72	68	76	72	82	73	84	72	84	64	68	90	67	77	77	78	78	78	75.9	74.4		
2	32	"	Dementia, - - - -		80	96	84	72	80	96	84	108	96	84	76	80	85	76	72	79	96	84	96	102	84.9	87.7		
3	35	"	Melancholia, - - -		80	72	71	63	74	78	90	64	88	72	64	65	85	64	77	66	84	72	69	80	78.2	69.6		
4	39	"	Dementia, - - - -		84	76	71	68	74	79	76	76	80	76	80	64	88	73	64	86	96	87	79	78	79.2	76.3		
5	41	"	Mania, quiet, - - -		76	84	64	76	84	92	90	80	66	80	84	84	76	90	75	83	73	96	87	93	77.5	85.8		
6	43	"	" " - - -		82	82	87	76	96	90	84	90	80	66	96	78	83	77	79	65	80	78	85	80	85.2	78.2		
7	53	"	" " - - -		82	96	78	90	90	90	78	90	82	90	78	84	108	84	68	68	84	83	85	89	83.3	86.4		
8	71	"	Senile insanity, - - -		66	76	90	76	72	76	84	80	72	68	83	73	78	85	78	75	89	90	90	76	80.2	77.5	80.5	79.4

V. CASES FROM TEN TO TWENTY, AND UPWARDS OF TWENTY YEARS IN DURATION.

	No.	Age	Sex	Disease		1st day		2d		3d		4th		5th		6th		7th		8th		9th		10th		Average		Total Average	
						M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E	M	E
From ten to twenty years.	1	27	Male,	Dementia, - - - -	*b*	96	66	64	68	76	72	84	64	84	60	102	73	79	72	88	60	101	60	84	75	85.9	67.		
	2	42	"	" - - - -		72	83	88	77	84	84	80	82	84	82	92	78	88	84	75	64	95	71	90	72	84.8	77.7		
	3	53	"	" - - - -		86	76	90	71	84	78	90	78	75	78	78	64	78	73	89	75	81	70	84	72	83.5	73.5		
	4	76	"	Senile insanity. - - -		74	63	84	72	84	68	84	66	88	65	78	68	84	72	85	74	66	66	72	66	79.9	68.	83.5	71.5
	1	34	Female,	Dementia, - - - -		76	75	78	72	84	96	72	78	74	72	78	72	78	61	78	65	68	79	85	80	77.1	75.		
	2	35	"	Mania, quiet, - - - -		78	90	73	82	94	96	85	70	80	66	80	88	81	90	89	87	78	96	85	84	82.3	84.9		
	3	45	"	" " - - - -		70	72	80	63	70	72	88	71	72	68	84	68	80	73	91	74	80	73	77	67	79.2	70.1		
	4	45	"	" " - - - -		82	76	76	81	90	88	96	73	78	78	99	78	73	68	78	73	90	72	78	80	84.	76.7	80.6	76.6
Upwards of twenty years.	1	42	Male,	Dementia, - - - -		76	68	98	96	87	84	85	96	85	84	89	90	90	73	86	87	83	76	83	74	86.2	82.8		
	2	48	"	Mania, quiet, - - - -	*b*	75	51	74	55	96	52	77	48	83	54	73	52	64	48	64	56	67	52	66	54	73.9	52.2		
	3	55	"	Imbecility, - - - -		68	71	80	69	72	72	96	72	84	68	96	75	72	64	72	72	85	60	90	71	81.5	69.4		
	4	56	"	Mania, quiet, - - - -		96	76	86	69	84	76	84	72	90	72	84	76	85	84	87	76	91	80	88	92	87.5	77.3		
	5	57	"	" " - - - -		90	63	86	59	80	68	68	66	92	64	90	57	93	56	66	73	90	63	84	72	83.9	64.1		
	6	65	"	Dementia, - - - -		74	63	70	57	76	60	66	60	72	54	72	61	78	60	66	63	66	60	72	76	71.2	61.4		
	7	82	"	Senile insanity, - - -		58	48	64	56	60	48	68	64	72	52	60	51	68	59	66	54	64	60	78	60	65.8	55.2	78.5	66.5
	1	29	Female,	Mania, epileptic, - - -		86	88	96	94	100	88	96	92	84	80	96	92	96	96	88	84	84	87	92	90	91.8	89.1		
	2	63	"	" quiet, - - - -		100	84	104	80	90	84	90	100	90	96	92	84	93	96	85	96	108	96	95	92	94.1	91.2		
	3	65	"	" " - - - -		64	86	86	84	80	84	78	76	72	80	73	96	72	72	76	76	96	75	79	85	77.6	81.4		
	4	66	"	Imbecility, - - - -		62	76	68	64	68	78	72	64	92	78	68	52	83	76	67	73	68	73	68	72	71.6	70.6		
	5	68	"	Mania, quiet, - - - -		70	76	63	80	58	60	72	72	64	78	62	66	64	72	60	72	83	66	73	60	66.9	70.2	80.4	80.5

A considerable number of these cases, as will be perceived by the references, were under medical treatment during the period in which the observations were made. In some of them the pulse was undoubtedly modified by this medication, but in others the influence was not of an appreciable magnitude. A few cases have been rejected from the whole number upon which the observations were made, and among them two, the peculiarity in whose circulation appeared, or in one of them, at least, to be an idiosyncrasy. The first was that of a female about forty-five years of age, whose mental disorder had been of nearly five years' duration. Her bodily health was somewhat impaired, and she was subject to occasional spasmodic muscular action of the left side, which, about two months after the termination of the observations, resulted in hemiplegia. Her pulse was examined with great precaution, and was found to range as follows:—

Morning,	120,	123,	132,	105,	132,	114,	102,	108,	114,	124.
Evening, in bed,	104,	108,	92,	128,	80,	80,	108,	105,	114,	120.

The second was that of a man, aged fifty-three years, and an inmate of the Bloomingdale Asylum ever since its opening, in 1821. His intellect is much impaired, but his physical health perfectly good. He assists in making the beds in the morning, but all his muscular movements are so slow, that when engaged in this employment, the exercise is not so great as that of moderate walking. The morning observations were made under the circumstances mentioned, and those of the evening, when he was in bed.—They are as follows:—

Morning,	100,	100,	102,	94,	112,	112,	112,	102,	106,	96;	Average,	103.6.
Evening	62,	56,	56,	58,	56,	55,	58,	64,	59,	64;	"	58.8.

In the communication containing the results of his observations, Dr. Ray, of the Maine Asylum, says: "I did not follow your suggestions of getting the pulse after the patients had retired to bed, because it occurred to me that the very circumstance of waking a patient and getting his pulse would probably have an effect upon it." This objection is replete with truth and force, and unless the precautions suggested by Dr. Awl, in the remarks accompanying his observations, are constantly practised, the results of investigations of the pulse under the circumstances in question must be very erroneous. But, in this connection, I wish to direct attention to some of the cases contained in the foregoing tables. In No. 1. of males, table 1st, the fifth evening observation is 66, and in No. 9, the 6th, 8th and 9th are 88, 84 and 96 respectively; No. 7, table 4th, the 6th evening observation is 64, and No. 7, females, it is 90. No. 4, males, 2d division of table 5th, the 6th and 10th evening observations are 76 and 92, and the

case next following (No. 5), the 3d, 8th and 10th are 68, 73 and 72. No 1, females, same division of table 5th, the 7th is 96, and No. 4, same division, the 3d, 5th and 8th are 78, 78 and 73. In all these cases, at the times of the several observations here specified, the patients were *sleeping*, and, by a comparison of these observations with the others upon the same persons, it will be perceived that they are generally the highest. In some of them all the observations during sleep exceed any of those when the person was awake. The instances adduced are nearly all, of the whole number included in the tables, which were taken while the patients were sleeping, and they were thus taken, preserved and embodied with the others, that the fact of the predominance (in these cases at least) of the sleeping pulse over that of the waking might be noticed. The fact proves, also, that, in these cases, there could have been no excitement, at the several times of taking the pulse when the persons were awake, which materially influenced the rapidity of the circulation. Having heretofore remarked upon other peculiarities of the pulse of the insane, there is no necessity of enlarging upon the subject at the present time.*

Meteorological register kept at the Bloomingdale Asylum during the period in which the foregoing observations of the pulse were made.

Date	At sunrise, Thermometer out of doors	At sunrise, Thermometer in the house	Barometer at sunrise	Wind	Weather
1844, May 16	55	63	30.10	S. W.	Cloudy.
" 17	59	65	29.85	E.	Rain.
" 18	53	63	30.20	S. E.	"
" 19	55	64	30.25	N. W.	Clear.
" 20	51	65	30.20	S. E.	Rain.
" 21	61	65	29.80	N. W.	"
" 22	40	61	30.30	N. W.	Clear.
" 23	45	60	30.40	S. W.	"
" 24	55	62	30.40	–	"
" 25	60	65	30.20	–	"

* *Vide* Am. Journ. Med. Sci., new series, No. 5, January, 1842, p. 84.
" " " " No. 14, April, 1844, p. 306.

Observations on the Pulse of thirty-two Insane persons, at the Eastern Asylum, Williamsburg, Virginia. By JOHN M. GALT, M. D., Physician to that Institution.

I. MALES.

No.	Age	1st day			2d			3d			4th			5th			6th			7th			8th			9th			10th			Average		
		M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E
1	48	59	65	60	71	55	63	63	81	64	60	74	86	62	80	64	60	65	68	63	74	65	78	82	71	68	77	63	80	81	81	66.4	73.4	68.5
2	35	63	76	84	71	81	71	70	72	50	71	82	55	66	74	58	69	71	60	65	72	70	72	71	76	71	80	81	64	96	74	68.2	77.5	67.9
3	24	55	78	64	61	59	55	57	75	52	67	77	68	51	80	54	57	87	78	56	72	81	55	61	66	58	71	64	53	83	54	57.0	74.3	63.6
4	55	69	87	80	78	82	69	63	76	75	68	87	74	73	77	69	70	80	69	72	80	61	82	98	77	77	86	72	80	89	75	73.2	84.2	72.1
5	48	60	82	79	81	87	77	80	81	71	70	105	74	64	94	74	70	91	84	72	80	83	76	81	80	77	93	91	75	95	85	72.5	88.9	79.8
6	34	71	87	69	67	78	58	60	75	56	66	88	59	67	108	72	77	90	61	63	74	61	87	77	59	71	73	52	74	78	50	70.3	82.8	61.7
7	43	55	65	58	78	74	50	49	66	48	65	68	48	80	84	59	61	75	61	55	70	55	59	80	54	54	73	54	49	66	48	60.5	72.1	53.5
1	46	55	62	55	52	53	49	54	50	50	55	57	51	51	55	56	50	51	51	49	47	54	50	49	51	52	51	48	48	53	50	51.6	52.8	51.5
9	40	64	72	68	57	71	71	59	60	74	67	81	59	60	102	67	61	94	74	67	81	61	63	87	76	62	90	68	63	97	70	62.3	83.5	68.8
10	32	48	95	70	56	64	64	47	52	65	51	56	68	53	84	68	49	60	63	53	64	64	55	65	67	52	54	68	51	67	63	51.5	66.1	66.0
11	24	66	77	59	71	78	53	56	71	64	66	77	57	71	86	58	71	77	62	70	70	52	69	66	60	66	67	56	76	89	63	68.2	75.8	58.4
12	39	63	68	66	61	76	58	59	64	58	57	70	62	59	72	67	64	79	60	64	68	65	60	83	60	56	78	64	67	71	62	61.0	72.9	62.2
13	38	75	103	98	78	98	90	82	95	78	90	100	77	88	110	78	79	88	86	94	88	87	85	96	91	78	89	84	90	82	77	83.9	94.9	84.6
14	61	77	96	85	78	87	69	69	87	71	71	82	67	71	78	80	72	74	73	71	87	72	77	82	74	76	83	75	80	80	76	74.2	83.6	74.2
15	45	75	94	96	75	93	68	73	86	74	72	84	67	76	87	86	78	91	72	67	76	74	68	93	76	68	86	78	74	75	73	72.6	86.5	76.4
16	42	49	61	61	65	61	63	56	67	48	51	56	57	58	71	74	66	73	65	57	70	62	57	78	61	61	79	65	68	74	65	58.8	69.0	62.1

II. FEMALES.

No.	Age	1st day			2d			3d			4th			5th			6th			7th			8th			9th			10th			Average		
		M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E	M	N	E
1	57	80	91	95	88	84	78	80	81	77	89	88	91	86	83	84	84	90	86	83	87	98	90	90	81	82	86	85	84	82	88	84.6	86.2	86.3
2	53	71	80	80	72	70	79	66	72	60	68	103	80	69	74	78	68	74	72	67	75	80	66	76	71	63	68	75	65	67	76	67.5	75.9	75.1
3	41	62	68	68	71	68	65	58	62	72	66	82	73	60	77	62	62	77	79	66	74	68	70	80	63	62	79	68	65	73	69	64.2	73.7	68.7
4	50	74	119	67	75	84	65	74	80	70	68	83	80	77	88	73	72	77	81	72	85	76	77	91	72	66	83	77	76	85	75	73.1	87.5	73.6
5	32	104	122	100	93	96	84	71	74	81	70	94	84	70	91	87	69	78	81	78	75	76	72	80	82	65	94	87	71	87	88	76.3	89.1	85.0
6	43	81	77	87	72	81	87	70	77	78	70	82	84	63	74	85	65	67	92	67	77	89	65	77	83	63	79	93	65	77	88	68.1	76.8	86.6
7	38	71	90	76	60	80	67	60	88	58	61	89	71	58	73	69	58	85	84	63	77	69	68	87	67	60	85	68	61	72	71	62.0	82.6	70.0
8	48	63	91	70	58	77	68	64	74	69	56	76	68	61	80	70	64	68	78	60	70	81	63	85	75	58	72	76	74	80	72	62.1	77.3	72.7
9	30	85	92	90	82	88	77	80	87	76	72	70	77	78	82	81	85	90	83	90	104	83	94	90	78	90	86	71	86	86	80	84.2	87.5	79.6
10	47	63	71	72	71	68	68	58	60	64	64	69	67	66	72	70	70	75	76	72	80	79	80	78	70	68	72	76	72	74	83	68.4	71.9	72.5
11	49	77	83	73	84	78	69	75	71	75	78	74	72	72	87	80	78	79	83	80	84	84	75	83	73	70	73	83	85	86	82	77.4	79.8	77.4
12	34	97	91	83	91	88	78	79	86	89	94	100	74	88	94	83	90	102	87	90	88	91	87	86	87	81	84	102	86	106	76	88.3	92.5	85.0
13	26	72	78	85	70	79	71	66	79	79	69	74	80	70	77	84	69	70	81	66	73	81	72	82	77	70	65	80	76	78	87	70.0	75.5	80.5
14	27	72	70	65	64	73	73	65	63	75	61	68	56	62	73	62	76	62	63	64	70	60	67	75	66	66	78	64	74	83	55	67.1	71.5	63.9
15	44	84	105	91	78	75	64	70	74	80	75	92	68	81	91	74	76	104	83	78	88	82	77	102	79	80	86	77	106	105	83	80.5	92.2	78.1
16	59	72	78	87	69	66	74	78	71	78	76	77	83	70	86	77	64	87	78	73	72	86	98	70	70	75	73	73	76	82	54	75.1	76.2	76.0
																										Total average,			-			73.	81.	76.9

Observations on the Pulse of forty-four Insane persons. By Isaac Ray, M. D., Physician to the Maine State Lunatic Asylum.

I. MALES.

	No.	Age	Time insane	Form of disease	Time	Pulsations per minute 1st Day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Average M	A	Total Average M	A
Recent cases.	1	18	4 months,	Mania, quiet,	M	94	94	100	8[illegible]	102	92	112	91	102	76	95.2			
					A	94	79	92	88	101	92	84	71	62	62		82.5		
	2	36	3 "	Dementia, quiet,	M	57	64	5[illegible]	57	56	63	68	67	69	70	63.0			
					A	62	56	60	6[illegible]	58	68	62	57	54	71		61.6		
	3	49	3 "	Mania, quiet,	M	82	72	75	6[illegible]	79	98	92	84	60	86	79.3			
					A	80	84	80	6[illegible]	78	75	74	76	75	70		76.0		
	4	48	6 "	Mania, convalescing,	M	74	83	80	80	76	94	77	84	87	69	70.4			
					A	76	72	82	71	70	74	6[illegible]	70	91	66		73.5	76.9	73.4
Chronic cases.	5	55	1 year,	Mania, some excited,	M	62	72	90	6[illegible]	70	68	62	88	62	66	70.0			
					A	64	68	76	74	68	70	68	72	56	78		69.4		
	6	33	1½ years,	Mania, quiet,	M	70	72	69	78	70	67	71	68	80	59	70.4			
					A	88	75	76	66	85	66	66	65	66	64		71.7		
	7	33	1½ "	Mania, epileptic,	M	62	73	56	6[illegible]	61	64	70	57	61	68	63.7			
					A	73	60	62	60	68	57	55	67	79	63		64.4		
	8	41	2 "	Mania, some excited,	M	61	88	70	74	82	72	92	87	92	95	81.3			
					A	75	60	74	7[illegible]	68	84	84	80	68	77		74.9		
	9	32	4½ "	Mania, quiet,	M	72	70	67	64	73	77	80	84	89	69	74.5			
					A	68	69	69	47	66	57	78	58	68	72		65.2		
	10	26	2½ "	Mania, quiet,	M	74	59	58	6[illegible]	93	90	71	69	76	79	73.4			
					A	74	67	76	71	81	82	74	80	66	77		74.8		
	11	46	3 "	Mania, quiet,	M	58	78	94	72	98	72	86	78	56	72	76.4			
					A	63	58	76	78	64	52	88	51	50	70		65.0		
	12	31	3 "	Mania, quiet,	M	96	91	87	82	93	80	110	96	81	96	91.2			
					A	93	93	82	8[illegible]	79	79	78	86	70	76		81.6		
	13	68	3½ "	Mania, quiet,	M	62	66	68	66	68	64	64	61	68	64	65.1			
					A	68	54	66	5[illegible]	58	68	54	57	60	62		60.3		
	14	25	4 "	Mania, some excited,	M	84	94	88	100	90	108	98	98	90	89	93.9			
					A	68	80	96	80	92	90	82	100	78	88		85.4		
	15	28	4 "	Mania, quiet,	M	77	73	77	72	73	72	100	81	89	101	81.5			
					A	76	67	76	74	86	92	76	102	70	104		82.3		
	16	20	4 "	Dementia, quiet,	M	73	97	98	74	76	92	67	70	90	90	82.7			
					A	80	72	66	72	71	89	74	101	82	80		78.7		
	17	22	4½ "	Dementia, quiet,	M	120	89	73	96	72	100	67	94	64	103	87.8			
					A	61	70	56	60	88	84	100	74	64	70		72.7		
	18	26	5 "	Dementia,	M	86	86	102	96	108	102	100	89	99	95	96 3			
					A	72	76	96	87	106	84	79	80	80	83		85.3		
	19	21	5 "	Dementia, quiet,	M	60	92	86	62	88	92	97	110	98	84	86.9			
					A	69	68	70	62	70	103	85	80	61	86		75.4		
	20	28	5 "	Dementia, quiet,	M	96	78	78	6[illegible]	80	76	87	71	81	90	80 2			
					A	70	67	78	7[illegible]	84	94	88	64	82	92		79.3		
	21	32	5 "	Mania, quiet,	M	56	60	57	5[illegible]	53	55	76	58	55	56	58.1			
					A	56	54	61	8[illegible]	62	56	56	47	66	52		59.6		
	22	39	6 "	Mania, epileptic,	M	57	72	80	6[illegible]	80	72	86	84	78	70	74.1			
					A	86	66	74	8[illegible]	80	86	68	68	49	71		73.6		
	23	71	6 "	Dementia, quiet,	M	71	68	64	70	72	72	70	62	64	66	67.9			
					A	62	72	66	7[illegible]	76	84	72	62	62	69		70.3		
	24	36	6 "	Mania, quiet,	M	69	66	59	7[illegible]	67	68	58	61	55	53	62.9			
					A	64	60	60	58	59	53	50	52	50	54		56.0		
	25	80	8 "	Mania, quiet,	M	72	73	66	6[illegible]	69	74	66	75	75	72	71.1			
					A	76	69	76	74	74	80	74	74	67	77		74.1		
	26	50	17 "	Dementia,	M	72	72	72	6	92	80	79	76	76	92	77.9			
					A	70	64	64	6[illegible]	74	72	83	65	62	100		71.4		
	27	44	19 "	Dementia, quiet,	M	103	72	86	9[illegible]	98	92	96	89	81	75	88.8			
					A	69	79	96	7[illegible]	94	88	82	90	83	70		82.9		
	28	48	30 "	Mania, quiet,	M	94	92	84	8[illegible]	91	82	105	83	98	98	90.7			
					A	85	84	79	79	96	105	80	72	74	76		83.0		
	29	56	33 "	Dementia, quiet,	M	68	66	84	84	101	76	88	78	70	68	78.3			
					A	64	50	58	62	67	70	64	58	60	55		60.8	77.8	72.6

II. FEMALES.

	No.	Age	Time insane	Form of disease	Time	Pulsations per minute 1st Day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Average M	Average A	Total Average M	Total Average A
Recent cases.	1	42	6 months	Mania, convalescing,	M	70	72	74	72	80	70	62	80	62	82	72.4	75.2		
					A	76	84	70	78	70	76	68	72	80	78				
	2	50	6 "	Mania, quiet, -	M	60	60	58	54	62	58	64	58	62	64	60.0	57.8		
					A	64	58	56	64	58	62	52	56	52	56				
	3	45	6 "	Mania, melancholy,	M	82	88	82	84	100	92	88	88	92	92	88.8	90.6		
					A	84	92	96	90	98	96	96	82	88	84				
	4	45	5 "	Mania, some excited, -	M	62	68	76	64	64	64	76	64	60	62	76.	73.1		
					A	80	68	75	66	72	86	68	76	76	64				
	5	52	8 "	Mania, quiet, -	M	76	64	64	70	84	68	66	76	68	76	71.2	66.5		
					A	76	66	72	60	64	65	62	64	60	76				
	6	19	9 "	Mania, convalescing,	M	68	78	70	64	74	68	64	100	68	80	73.4	72.3		
					A	92	76	64	70	76	72	68	64	72	72				
	7	25	11 "	Mania, convalescing,	M	80	76	72	60	68	68	62	100	90	80	75.6	72.6	72.5	72.6
					A	68	66	82	70	72	72	72	76	76	72				
Chronic cases.	8	26	1 year,	Mania, melancholy,	M	70	66	66	72	64	78	64	66	80	76	70.2	66.4		
					A	76	66	68	66	76	64	60	56	64	68				
	9	40	1 "	Mania, quiet, -	M	76	80	82	70	72	72	80	84	72	80	76.8	72.2		
					A	76	80	72	76	64	76	62	76	64	76				
	10	45	3 years,	Mania, quiet, -	M	65	60	62	68	72	60	70	64	68	68	65.7	68.3		
					A	75	64	64	72	64	68	80	64	64	68				
	11	37	3 "	Mania, some excited, -	M	76	86	80	74	82	96	76	104	90	106	87.0	90.1		
					A	102	84	80	84	90	86	84	96	96	100				
	12	44	4 "	Mania, quiet, -	M	62	64	60	60	62	60	64	60	58	60	61.0	64.0		
					A	72	78	60	60	72	60	60	58	60	60				
	13	43	5 "	Mania, quiet, -	M	74	70	68	78	94	76	66	68	56	78	72.8	81.2		
					A	76	72	80	84	84	96	70	80	92	78				
	14	63	20 "	Mania, quiet, -	M	106	68	68	66	65	66	80	72	60	88	73.9	75.6		
					A	68	64	58	86	100	88	90	64	58	80				
	15	29	6½ "	Mania, some excited, -	M	92	84	80	80	82	116	84	76	78	76	84.8	85.9	74.5	75.4
					A	80	88	82	84	90	100	86	80	81	88				

Observations on the Pulse of forty Insane persons, at the New Hampshire State Lunatic Asylum. By WILLIAM H. ROCKWELL, M. D., Physician to that Institution.

I. ACUTE INSANE MEN.

		In bed.											Out of bed.									
No.	Age	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	Average	1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	
1	62	84	76	80	76	76	68	72	72	72	82	75.8	76	80	72	88	64	76	64	72	84	74	75.
2	36	64	68	76	76	72	68	72	72	64	68	70.	70	80	72	84	100	84	68	76	68	88	79.
3	45	92	92	96	100	120	96	112	108	104	110	103.	100	104	104	108	108	96	112	112	108	112	106.4
4	26	68	76	68	72	68	64	76	76	64	80	71.2	76	82	76	72	84	72	96	92	84	88	82.2
5	50	60	60	60	60	60	68	68	68	64	68	63.6	60	64	64	64	72	80	68	72	96	76	71.6
6	37	80	84	92	80	72	88	68	88	80	72	80.4	72	104	76	92	92	80	76	92	80	96	86.
7	29	60	60	60	60	60	76	64	60	68	64	63.2	64	72	60	64	72	80	72	88	72	84	72.8
8	60	100	100	100	108	100	104	92	100	100	92	99.6	102	104	96	112	96	92	104	96	96	96	99.4
9	57	80	92	92	84	84	88	88	88	88	80	85.4	68	92	80	84	72	76	76	84	84	80	79.6
10	40	68	72	84	80	76	84	76	89	72	88	78.9	64	96	72	92	64	72	72	80	80	84	77.6
Total average,												79.1											82.9

II. ACUTE INSANE WOMEN.

1	30	80	88	92	84	72	76	76	76	76	76	79.6	92	79	92	76	80	92	96	96	84	84	87.1
2	26	84	100	88	84	72	96	68	76	88	76	83.2	72	92	68	84	76	80	84	72	76	72	77.6
3	44	100	104	96	96	92	96	104	100	100	92	98.0	104	104	100	88	100	88	96	92	92	96	96.
4	26	64	88	84	92	76	68	76	92	64	88	79.2	68	68	88	68	76	64	82	68	96	68	74.6
5	44	92	76	92	88	80	84	92	84	81	88	85.7	96	104	80	88	88	92	100	92	88	92	92.
6	53	88	84	72	88	72	68	68	76	84	72	77.2	76	76	80	72	72	76	76	72	88	80	76.8
7	40	84	84	80	80	84	84	76	80	80	76	80.8	80	84	68	76	84	76	80	80	76	96	80.
8	45	76	68	72	76	80	96	80	84	76	88	79.6	72	96	88	84	76	76	100	108	92	84	87.6
9	24	88	92	88	96	88	96	100	100	92	84	92.4	92	92	100	112	108	100	96	104	104	96	100.4
10	42	80	96	84	100	84	96	96	88	92	88	90.4	92	128	100	104	96	84	96	84	96	96	97.6
Total average,												84.5											86.9

III. CHRONIC INSANE MEN.

1	31	80	88	96	68	72	60	76	68	72	72	75.2	84	92	108	96	100	100	80	76	76	84	89.6
2	26	84	84	92	68	68	76	72	72	80	80	77.6	68	76	76	72	68	72	72	68	80	76	72.8
3	29	88	76	72	84	76	72	72	68	72	64	74.4	100	100	100	96	84	100	96	84	92	96	94.8
4	28	88	68	84	80	76	76	72	76	64	72	75.6	88	96	80	96	88	92	72	92	76	76	85.6
5	57	76	72	72	64	64	64	76	68	72	76	70.4	92	84	80	92	76	76	80	80	68	92	82.
6	46	64	66	60	64	56	56	56	60	60	60	60.2	92	68	80	68	68	64	76	68	64	72	72.
7	52	68	64	72	72	68	64	68	68	68	76	68.8	92	72	72	72	68	68	64	64	84	88	74.8
8	46	80	84	80	76	80	80	72	72	84	84	79.2	112	72	92	64	84	76	76	96	100	72	84.4
9	23	64	68	60	64	64	64	68	68	72	60	65.2	84	96	100	92	88	72	68	68	92	72	83.2
10	36	60	56	64	60	64	52	56	60	60	60	59.2	80	72	84	76	76	68	80	64	76	64	74.
Total average,												70.5											81.3

IV. CHRONIC INSANE WOMEN.

1	35	80	84	84	68	88	64	80	84	80	76	71.8	80	84	88	76	80	76	76	84	84	84	81.2
2	39	92	80	84	72	88	92	84	100	72	88	85.2	96	96	92	80	80	92	76	96	96	96	90.
3	42	86	80	80	72	80	84	72	88	84	84	85.	80	84	64	84	76	80	84	84	84	88	80.8
4	50	88	84	68	80	88	76	84	84	84	88	82.4	88	80	100	84	76	92	84	84	84	76	84.8
5	54	64	80	80	84	72	68	80	80	72	80	76.	84	68	80	72	84	76	76	80	76	88	78.4
6	49	72	68	80	72	84	76	76	80	72	80	76.	84	76	100	92	72	72	84	88	76	88	83.2
7	51	80	72	92	72	72	68	80	72	76	80	76.4	68	72	68	76	72	64	76	80	60	64	70.
8	36	68	80	76	72	72	76	72	68	80	68	73.2	84	92	84	100	88	92	88	92	92	88	90.
9	45	88	76	84	84	84	72	80	73	72	76	78.8	80	96	84	92	96	88	88	88	92	92	89.6
10	34	104	88	102	96	100	100	96	96	84	92	95.8	92	80	76	100	88	96	64	64	66	96	82.2
Total average,												79.											83.

Observations on the Pulse of thirty-nine Insane persons. By CHARLES H. STEDMAN, M. D., Physician to the Boston Lunatic Asylum.

I. MALES.

No.	Age	Time	Pulsations per minute										Total		Average	
			1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	M	A	M	A
1	59	M	84	92	68	84	84	70	88	84	84	72	812		81.2	
		A	84	84	84	92	88	92	88	76	80	88		856		85.6
2	46	M	90	88	80	86	82	96	100	84	84	88	878		87.8	
		A	82	90	76	76	78	80	72	72	88	88		802		80.2
3	59	M	78	68	48	78	62	76	64	56	68	72	670		67.	
		A	72	80	86	76	66	60	80	72	60	72		724		72.4
4	35	M	112	100	96	96	104	96	88	78	96	92	958		95.8	
		A	80	78	78	76	80	84	76	88	72	68		780		78.
5	43	M	84	64	64	76	64	64	76	64	80	68	704		70.4	
		A	72	68	68	64	66	60	68	64	60	64		654		65.4
6	56	M	104	72	88	88	70	70	92	96	80	72	832		83.2	
		A	90	60	76	76	68	66	64	72	72	56		700		70.
7	35	M	66	88	64	76	64	68	60	66	72	68	692		69.2	
		A	66	76	74	72	72	72	64	64	64	64		688		68.8
8	26	M	112	80	64	80	104	78	76	70	100	76	840		84.	
		A	52	66	60	60	72	56	60	56	56	92		630		63.
9	51	M	66	60	64	66	96	80	88	72	88	80	760		76.	
		A	66	68	68	66	68	68	60	66	64	66		660		66.
10	31	M	76	86	84	72	76	76	70	68	76	80	764		76.4	
		A	78	76	76	76	76	76	74	72	68	84		756		75.6
11	34	M	76	80	88	52	76	88	68	72	60	56	716		71.6	
		A	72	68	58	58	40	44	40	44	44	42		510		51.
12	28	M	114	86	96	92	100	96	100	92	96	100	972		97.2	
		A	78	86	78	80	78	86	68	84	80	106		744		74.4
13	64	M	96	80	84	88	88	88	90	88	100	98	900		90.	
		A	78	84	84	74	68	66	64	72	74	80		744		74.4
14	28	M	108	102	108	104	110	104	104	112	104	108	1064		106.4	
		A	108	116	96	84	96	92	92	112	112	104		1012		101.2
15	18	M	108	102	102	112	100	98	108	108	104	104	1046		104.6	
		A	78	88	76	80	72	64	68	108	88	80		802		80.2
16	37	M	96	78	84	98	80	84	92	96	52	104	864		86.4	
		A	60	78	52	50	60	60	52	48	52	56		568		56.8
17	46	M	72	64	64	68	68	70	70	64	66	68	674		67.4	
		A	54	60	60	52	56	52	60	64	52	56		566		56.6
18	36	M	76	76	92	86	68	76	72	76	70	68	760		76.	
		A	66	68	76	64	68	60	56	56	76	56		646		64.6
19	41	M	120	110	104	112	100	108	112	104	106	108	1084		108.4	
		A	88	88	92	96	88	96	84	90	84	80		886		88.6
20	44	M	84	72	84	80	80	84	96	102	76	74	832		83.2	
		A	80	70	68	66	70	76	76	72	60	60		698		69.8
21	47	M	80	90	80	80	80	88	96	92	80	80	846		84.6	
		A	66	76	76	72	78	84	70	68	76	72		738		73.8
22	59	M	64	86	72	72	70	84	78	88	82	82	778		77.8	
		A	78	78	82	80	76	68	78	80	80	72		772		77.2
Total and total average, - - - - - - -													18446	15936	83.8	72.4

II. FEMALES.

No.	Age	Time	Pulsations per minute										Total		Average	
			1st day	2d	3d	4th	5th	6th	7th	8th	9th	10th	M	A	M	A
1	40	M	88	92	86	86	92	88	98	78	92	82	882		88.2	
		A	90	68	68	84	72	76	76	76	80	84		774		77.4
2	24	M	96	78	68	76	84	80	72	72	72	76	774		77.4	
		A	84	78	78	72	80	76	68	68	64	64		732		73.2
3	39	M	96	112	92	100	96	96	100	100	100	100	992		99.2	
		A	84	96	80	98	92	90	96	92	84	86		898		89.8
4	48	M	90	80	86	80	88	78	72	88	104	96	862		86.2	
		A	96	84	88	60	96	92	92	106	112	96		922		92.2
5	36	M	76	92	92	88	94	88	92	92	96	88	898		89.8	
		A	80	84	84	78	88	80	90	88	82	82		836		83.6
6	34	M	108	88	104	84	96	96	84	92	84	92	928		92.8	
		A	78	84	76	80	90	88	100	84	84	84		848		84.8
7	59	M	96	80	92	94	98	110	96	88	100	92	946		94.6	
		A	78	108	74	80	76	76	82	70	70	74		788		78.8
8	23	M	96	80	84	108	92	100	92	88	104	84	928		92.8	
		A	90	84	96	88	80	96	80	94	84	92		884		88.4
9	26	M	96	80	80	64	86	84	72	92	76	76	806		80.6	
		A	72	90	68	62	84	72	72	76	64	70		730		73.
10	55	M	96	84	100	98	94	104	84	108	96	96	960		96.	
		A	104	78	82	84	80	84	76	84	76	96		844		84.4
11	47	M	96	88	86	88	96	98	92	92	86	68	890		89.	
		A	84	80	68	80	90	74	88	68	76	64		782		78.2
12	37	M	84	84	76	84	96	84	86	80	80	80	834		83.4	
		A	78	80	64	72	72	76	72	76	70	78		668		66.8
13	53	M	84	80	76	74	78	72	84	72	82	84	786		78.6	
		A	86	84	64	64	72	60	72	74	68	82		726		72.6
14	55	M	96	80	96	86	76	88	84	88	104	88	886		88.6	
		A	84	96	72	64	84	72	80	80	88	88		808		80.8
15	47	M	88	88	80	88	84	84	90	92	96	74	864		86.4	
		A	80	66	76	78	68	68	82	80	60	78		736		73.6
16	44	M	102	96	88	86	100	92	116	96	104	88	968		96.8	
		A	96	100	96	76	96	84	80	80	92	84		884		88.4
17	28	M	80	72	80	80	88	84	86	96	88	88	842		84.2	
		A	88	88	76	96	96	88	88	86	84	96		876		87.6
Total and total average, - - - - - -													15046	13736	88.4	80.8

Drs. Bell and Chandler made but *one* observation, daily, upon each patient; Drs. Allen and Galt *three*, the former on a portion, and the latter upon the whole of his cases. In the cases last mentioned, the middle observation was made while the person was engaged in moderate exercise by manual labour. Of Dr. Galt's cases, he informs me that in two only were the persons wholly unemployed. The time at which the last daily observations were made, and the circumstances of the patients at the time, are somewhat diversified. Dr. Allen's were made in the afternoon, Dr. Ray's in the evening before the patients had retired for the night, and those of Drs. Awl, Earle, Galt, Rockwell and Stedman, while the patients were in bed.

The results of the respective tables are embodied in the following

Aggregate of averages.

	MALES								FEMALES							
	Recent				Chronic				Recent				Chronic			
	No. of cases	Morn	Eve.	In bed	No. of cases	Mor.	Eve.	In bed	No. of cases	Mor.	Eve.	In bed	No. of cases	Mor.	Eve.	In bed
Allen, - -	1	94.6	93.6		12	75.	74.9		1	78.8	79.5		7	80.7	80.8	
Awl, - -	5	72.2		66.3	20	71.2		64.9	5	72.5		71.8	20	81.5		73.3
Bell, - -	10	83.4			10	81.9			10	78.8			9	82.4		
Chandler,	2	58.2			6	66.4			4	73.4			3	86.1		
Earle, - -	10	86.1		68.9	24	83.		65.1	2	76.5		75.2	22	81.1		78.8
Galt, - -					16	65.7		66.9					16	73.		76.9
Ray, - -	4	76.9	73.4		25	77.8	72.6		7	72.5	72.6		8	74.5	75.4	
Rockwell,	10	82.9		79.1	10	81.3		70.5	10	86.9		84.5	10	83.		79.
Stedman, -					22	83.8		72.4					17	88.4		80.8
Total and average,	42	81.+	77.4	72.4	145	77.1	73.3	67.7	39	78.2	73.4	79.6	112	81.+	77.9	77.5

The general averages placed in the last horizontal division of this table are not the result of the addition of the superposed terms and a division of this sum by the number of those terms. This method, although perfectly correct, if the numbers of the patients examined by the several physicians had all been equal, would have been fallacious in the present case, where those numbers differ.

These averages were obtained by multiplying the average of each series of patients by the number of those patients, and dividing the sum of these products by the whole number of patients. Let *a* represent the number of each series of patients, *b* their average, and *n* the whole number of patients; then, if it is wished to obtain the general average, represented by *x*, the above method may be resolved to the following formula: $x = \frac{a \times b + a \times b + a \times b}{n}$; *a* and *b* are, of course, variable quantities, and, accurately to represent any given example, must be repeated in the divisor of the formula as many times as there are series of patients.

From this table it will be perceived that the whole number of persons upon whom the observations were made is *three hundred and thirty-eight*, (338), of whom *one hundred and eighty-seven*, (187) were males, and *one hundred and fifty-one*, (151) *females*. Of the males, *forty-two*, (42) were cases of recent or acute, and *one hundred and forty-five* of chronic insanity. Of the females, *thirty-nine*, (39) were acute, and *one hundred and twelve*, (112) chronic.

The general average of the morning observations is as follows:

In the recent or acute form of disease, - -	81.+	Males,	78.2	Females.
" chronic " " - -	77.1	"	81+	"

Observations in the latter part of the day, and while the individuals were out of bed, were made upon but *five* (5) males, and *eight* (8) females, in whom the disease was recent; and *thirty-seven* (37) males, and *fifteen* (15) females in whom it was chronic. Of these, the averages are as follows:

In the recent or acute form of disease, - -	77.4 Males,	73.4 Females.
" chronic " " - -	73.3 "	77.9 "

Of those upon whom observations were made while they were in bed, there were *twenty-five* (25) males, and *seventeen* (17) females, of whom the disease was acute; and *ninety-two* (92) males, and *eighty-five* (85) females, of whom the disease was chronic. The general averages of these were:

In the recent or acute form of disease, - -	72.4 Males,	79.6 Females.
" chronic " " - -	67.7 "	77.5 "

The following results are deduced from these general averages.

1st. In the observations made in the morning, and in the afternoon and evening, when the patients were not in bed, the averages of those of whom the disease was acute, are greater in males than in females; while, on the contrary, of those whose disease was chronic, the averages are greatest in the females.

2d. Of all the observations made when the patients were in bed, the general averages of the females exceed those of the males.

3d. Of all the observations made upon males, the general averages of those in whom the disease was acute exceed the same of those in whom the disease was chronic: whereas, in regard to females, the converse of this proposition, throughout, is the fact.

The following table exhibits the whole number of each class of patients, together with the number, in each series of observations, whose pulse averaged *above*, and the number which averaged *below* the general average of that particular series.

	Number above average								Number below average								Whole number of patients							
	Males				Females				Males				Females				Males			Females				
	acute		chronic		acute		chronic		acute		chronic		acute		chro.		a.	c.	tot.	a.	c.	tot.	agt	
	m	e	m	e	m	e	m	e	m	e	m	e	m	e	m	e								
Allen, - -	†		*3	5	†		4	5			8	7			3	2	1	12	13	1	7	8	21	
Awl, - -	3	3	11	9	1	1	10	12	2	2	9	10	4	4	10	8	5	20	25	5	20	25	50	
Bell, - -	3		5		6		4		7		5		4		5		10	10	20	10	9	19	39	
Chandler,	1		4		1		2		1		2		3		1		2	6	8	4	3	7	15	
Earle, - -	4	4	15	12	1	1	11	11	6	6	9	12	1	1	11	11	10	24	34	2	22	24	58	
Galt, - -			10	8			8	8			6	8			8	8		16	16		16	16	32	
Ray, - -	2	3	12	14	3	*3	3	3	2	1	13	11	4	3	5	5	4	25	29	7	8	15	44	
Rockwell,	3	4	5	3	6	4	5	4	7	6	5	7	4	6	5	6	10	10	20	10	10	20	40	
Stedman,			10	*11			9	*8			12	10			8	8		22	22		17	17	39	
	17	14	76	63	19	9	56	52	25	15	69	65	20	14	56	48	42	145	187	39	112	151	338	

* 1 the same as average.

† Only 1 whose disease was acute.

From this table we find the following results, reference being had to the averages of each series of observations, and not to the general averages of all the observations.

Of 42 males, disease acute, morning observations, 16* were above, and 25 below the averages.
" 29 " " " afternoon and evening, 14 " " 15 " "
" 145 " " chronic, morning observations, 75 " " 69 " "
" 128 " " " afternoon and evening, 62* " " 65 " "
" 39 females, dis. acute, morning observations, 18* " " 20 " "
" 23 " " afternoon and evening, 8* " " 14 " "
" 112 " chronic, morning observations, 56 " " 56 " "
" 102 " " afternoon and evening, 51* " " 48 " "

In the subjoined table will be seen the number of patients in each series of observations, the average of whose pulse was in each decade from 40 to 110.

I. MALES—*Disease, acute.*

	Morning observations										Evening observations									
	Allen,	Awl,	Bell,	Chandler,	Earle,	Galt,	Ray,	Rockwell,	Stedman,	Total.	Allen,	Awl,	Bell,	Chandler,	Earle,	Galt,	Ray,	Rockwell,	Stedman,	Total.
40 to 50												1								1
50 — 60		2		1						3		1			1				3	5
60 — 70			1	1			1		3	6		1			6		1	2	6	16
70 — 80		1	3		3		2	6	6	21		1			1		2	4	8	16
80 — 90		2	3		3			2	7	17		1			2		1	2	4	10
90 — 100	1		3		3		1	1	3	12	1							1		2
100 — 110					1			1	3	5								1	1	2

II. MALES—*Disease, chronic.*

50 — 60		2		1		4	1			8		8			5	3	2	1		19
60 — 70	1	7	1	3	1	6	4			23	1	7			13	8	6	3		38
70 — 80	9	8	2	2	5	5	9	4		44	9	5			5	4	11	6		40
80 — 90	2	2	6		15	1	7	5		38	2				1	1	6			10
90 — 100		1	1		3		4	1		10										
100 — 110																				

III. FEMALES—*Disease, acute.*

50 — 60							1			1							1			1
60 — 70		1	2				2			5		1					1			2
70 — 80	1	3	3	4	1		4	3		19	1	4			2		4	4		15
80 — 90		1	5		1		1	3		11							1	3		4
90 — 100								3		3								3		3
100 — 110								1		1										

IV. FEMALES—*Disease, chronic.*

50 — 60															1					1
60 — 70		3			2	7	2			14		8			1	2	3		1	15
70 — 80	3	4	5	1	8	5	4	2	2	34	2	8			10	9	2	6	7	44
80 — 90	4	8	3		9	4	2	6	9	45	5	3			8	5	2	3	8	34
90 — 100		4		2	3			2	6	17		1			2		1	1	1	6
100 — 110			1							1										

* In each of these series there was 1 the same as the average.

Hence it appears that, of the morning observations, the greatest number of averages in any decade is in that from 70 to 80, for both sexes and both stages of the disease, with the exception of the chronic cases of females. The greatest number of these is between 80 and 90. But, it will be observed, that there are many more above 80 than below 70: thus, of the males, whose disease was acute, there are 34 above 80, and but 9 below 70; and of the chronic, 48 above 80 and 31 below 70. Of the females, whose disease was acute, there are 15 above 80 and but 6 below 70; and of the chronic, 63 above 80 and but 14 below 70.

The greatest number of averages in the afternoon and evening observations is also in the decade from 70 to 80, excepting the males with acute disease, in which class the numbers between 70 and 80 and 60 and 70 are equal. But in the males, of both acute and chronic disease, the number *below* 70 exceeds that of those above 80: of the former, there are 22 below 70 and 14 above 80; of the latter, 57 below 70 and but 10 above 80. But this part of the tables is composed of incongruous materials, inasmuch as some of the observations were made in the afternoon, some in the evening, and some when the patients were in bed.

Selecting the cases of Drs. Awl, Earle, Galt, Rockwell and Stedman, all in which the observations were made after the patients had retired to rest, the results are as follows:—

	Males		Females	
	Acute	Chronic	Acute	Chronic
40 to 50	1			
50 to 60	2	20	–	1
60 to 70	9	37	1	12
70 to 80	6	28	10	40
80 to 90	5	8	3	27
90 to 100	1	–	3	5
100 to 110	1	1		

The maximum number of averages for the males, both acute and chronic, is between 60 and 70; that of the females, between 70 and 80.

It is proper, now, to introduce the observations of Amariah Brigham, M. D., Physician to the New York State Lunatic Asylum, at Utica. Having examined the pulse of nearly all the patients who, at the time of communicating the following results, had been admitted into that institution, he found the averages to be—

From	40	to	50	in	5	men	and	0	women.
"	50	to	60	in	9	"	"	2	"
"	60	to	70	in	61	"	"	18	"
"	70	to	80	in	47	"	"	32	"
"	80	to	90	in	69	"	"	76	"

From	90	to 100	in 18	men	and 17	women.
"	100	to 110	in 16	"	" 35	"
"	110	to 120	in 2	"	" 10	"

These averages appear higher than those of the several series more fully reported, but this undoubtedly arises from the fact that there was no *selection of cases*, as in most of the other series mentioned.

H. A. Buttolph, M. D., assistant physician to the asylum at Utica, gives the following testimony in regard to the rapidity of the pulse in persons afflicted with mental disorders:—

"The result of my observations, thus far, is, that a majority of the insane have an increased frequency of the pulse; a pretty large number are natural as to frequency, and a smaller number have a preternaturally slow pulse."

Observations and Remarks upon the Pulse of the Insane. By SAMUEL B. WOODWARD, M. D., Physician to the Massachusetts State Lunatic Hospital.

"Last winter my attention was turned to the subject, and I examined a great number of cases once, and some more than once. The following was the result:—

1. Forty cases, recent and excited:

19 males, average of the pulse,	80
21 females, " "	81
Total average, about	$80\frac{1}{2}$

2. Two hundred and sixteen cases, mostly chronic:

110 males, average of pulse,	71
106 females, " "	72
Total average, about	$71\frac{1}{2}$

3. Fifty-four dull and demented cases:

26 males, average of pulse,	$68\frac{5}{6}$
28 females, " "	$69\frac{1}{28}$
Total average, about	69

The first and last classes did not include, in any instance, the same individuals; the second class did include a few of each of the other classes.

"These patients were all examined when in a quiet state, mostly seated, some standing and a few in bed. The circumstances were most favourable for obtaining a fair average. It is difficult, in any way, to come at accurate results with a class of patients affected by so many influences as are the insane, even when the pulse is examined on many consecutive days. If the patients in my examination were found to be unusually excited, or

labouring under a cold or influenza at the time, they were passed by, so that the average in all the cases, is doubtless low enough, and, perhaps, lower than usually would be found in the same persons. A stranger, I presume, might have followed me immediately and found the average considerably higher. On the whole, this and all my former observations lead me to conclude that, while in recent and excited cases, the pulse will average considerably above the standard of health, and in low, torpid and demented cases, somewhat below that standard, the great mass of chronic cases will be found to vary very little from the rest of the community, when quiet and undisturbed by passion, irritation, disease or other cause of excitement, in the frequency or force of the pulse."

Dr. Bell, of the McLean Asylum, has loaned me a collection of medical records made at that institution by his predecessor, the late Rufus Wyman, M. D., from the year 1820 to the year 1834. These contain observations upon the pulse, apparently made with care and accuracy, but without a designation of the ages of the persons, or of the duration of their disease. Extracting all cases in which there was a series of ten observations each, the following statistics have been obtained:—

Males, 164; general average of the pulse, - - - -	74.5
Females, 73; " " " - - - -	85.4
The lowest average of the males is, - - - - - -	52.2
The highest " " - - - - - -	109.4
The lowest average of the females is, - - - - - -	63.4
The highest " " - - - - - -	102.

Of the males, there were 79 *below* and 85 *above* the general average.
Of the females, " 47 26 " "

In the subjoined table, all these cases are arranged according to the respective decades in which the pulse was found to average:—

	50 to 60	60 to 70	70 to 80	80 to 90	90 to 100	100 to 110	Total
Males, -	9	33	82	35	3	2	164
Females,	-	6	23	27	16	1	73

Of the males, the maximum number of averages is between 70 and 80; above 80 there are 40, and below 70, 42. Of the females, the highest number is between 80 and 90; there are 17 above 90, and 29 below 80.

As has been heretofore remarked, I was disappointed by not obtaining observations upon the adult sane. The following series made upon the pulse of 48 boys, from eight to twelve years of age inclusive, were furnished by WILLIAM ROCKWELL, M. D., *late superintendent of the Leake*

and Watts' Orphan Asylum, at Bloomingdale, N. Y. They are worthy of preservation for future reference and comparison:

No.	Age	Up, but at rest	After exercise	In bed	No.	Age	Up, but at rest	After exercise	In bed
1	8 years,	79	88	76	26	10 years,	75	88	72
2	8 "	82	84	80	27	10 "	78	80	76
3	8 "	70	84	68	28	10 "	66	72	64
4	8 "	83	86	82	29	10 "	80	81	80
5	8 "	74	79	70	30	10 "	80	98	76
6	8 "	75	88	70	31	10 "	84	96	80
7	8 "	69	74	66	32	10 "	82	94	78
8	8 "	74	80	72	33	10 "	80	88	78
9	8 "	79	78	80	34	10 "	76	78	76
10	7 "	76	88	70	35	10 "	74	80	72
11	7 "	79	84	76	36	10 "	79	88	76
12	7 "	83	86	81	37	10 "	76	88	74
13	9 "	83	86	80	38	10 "	73	82	70
14	9 "	66	68	66	39	10 "	81	86	80
15	9 "	70	88	68	40	10 "	77	88	74
16	9 "	72	92	70	41	10 "	80	86	76
17	9 "	65	80	62	42	10 "	71	82	66
18	9 "	84	86	84	43	11 "	80	96	76
19	9 "	78	86	76	44	11 "	77	80	74
20	9 "	78	80	78	45	11 "	85	72	82
21	9 "	82	88	80	46	12 "	84	92	78
22	9 "	70	96	68	47	12 "	74	76	74
23	9 "	70	76	68	48	12 "	70	96	66
24	9 "	83	96	80					
25	10 "	82	84	80					
Total average,					Total average,				
7 years,		79.3	86	75.6	10 years,		77.4	85.5	74.8
8 "		77.2	82.3	73.7	11 "		80.6	82.3	77.3
9 "		75.1	85.1	73.3	12 "		76	88	76.

ART. V.—*Temporary Protrusion of the Eyeball, with loss of Vision, from rheumatic inflammation following Scarlatina.* By ISAAC G. PORTER, M. D., of New London.

THOUGH single observations in pathology are, ordinarily, read with little interest, yet they possess no small value, when they throw light upon controverted physiological principles, or newly-discovered points in anatomy.

In the number of this Journal for July, 1842, is a highly interesting article from the Dublin Journal for July, 1841, by J. M. Ferrall, Esq., exhibiting his views respecting the anatomy of certain structures in the orbit of the eye, and the pathology thence deduced. The benefit of these new views was not enjoyed by the writer while the following case was in progress, as they were not published in this country until nearly a year after its occurrence, but in no way, except by their adoption, can its peculiarities be

explained. Granting the anatomy to be, as maintained by him and others, and the difficulty is easily solved on common pathological principles.

Early in October, 1841, a daughter of P. S———, six years of age, was attacked with scarlatina, then sporadically prevalent. The efflorescence was but slight, and the soreness and redness of the fauces transient, and of so little account, that medical advice was not then sought. No unusual exposure, or error in diet, could certainly be regarded as the occasion of what followed, though from the slight illness of the child, both may have occurred without the knowledge of her parents. Ten days, however, from the appearance of the rash, there were slight febrile indications, followed by symptoms of jaundice, the skin and albuginea being discoloured, urine red and sparing, feces ash-coloured. This continued about a week, and, doubtless, arose from gastro-duodenal inflammation; and as it subsided, marks of irritation in other portions of the intestinal canal were evidenced by fever, picking the nose, grinding the teeth, discoloured and offensive dejections, with other indications of infantile remittent fever. Profuse diarrhœa followed, and, as this yielded, severe rheumatic pains attacked the extremities. These made their appearance about two weeks after the rash, and were thenceforth intermingled with other symptoms, affecting sometimes the wrists and arms and then migrating to the ankles—the part affected being so tender and painful as to forbid all pressure or motion. Moderate swelling was the only external sign of inflammation. The treatment, thus far, consisted in meeting symptoms as they arose. The jaundice yielded to counter-irritants and fomentations over the stomach and liver, with calomel, pulv. ipecac. comp., and laxative enemata.

The diarrhœa, as in other cases following scarlatina, was speedily checked by one or two mild cathartic doses of pulv. rhei, two parts, and hydrarg. chlor. mit., one part. The rheumatic pains were alleviated by anodyne fomentations and sinapisms, and pulv. ipecac. comp.

One month from the appearance of the rash, these pains, which had continued for a fortnight, began to diminish, when the right eye became swollen and painful. At first it was supposed to be confined to the lid, but it was soon evident, that other structures were affected.—The eye soon protruded one-half or three-fourths of an inch, giving a hideous aspect to the countenance, and was very hard and firm to the touch.* The lids became of a dark-red or purple colour, and so great was the projection of the eye, that they were forcibly separated from each other one-fourth of an inch; the eyelashes, from the same cause, being removed far asunder. The conjunctiva assumed a peculiar aspect, lying in folds, surrounding or overhanging the cornea, as in chemosis, though "amber-coloured," being filled with serum instead of blood. The iris was scarcely visible, and the cornea, so far as seen, was dull and hazy, though, owing to the encroachment of the conjunctiva, no satisfactory view of it

* Though not a case of hydrophthalmia, yet, from its appearance, it might justly receive one of its synonymes "buphthalmus," or ox-eye.

could be obtained. The sight of the eye was probably early lost, yet from the age and debility of the child it was impossible to settle the point. The amount of pain did not seem *very* great, perhaps from her being constantly under the influence of anodynes. A sense of distension, or, perhaps, of itching, seemed almost constant in the swollen lid, and very slight friction, with a brush, seemed grateful, though pressure gave extreme pain. Reserving the treatment instituted for a subsequent place, we next advert to another phase of the disease. As the eye was reduced to its ordinary size, the hands and wrists became again painful, stiff and swollen. Soon they were entirely relieved, when evident symptoms of pericarditis appeared. The countenance became indicative of extreme distress, and there were severe darting pains in the region of the heart, with palpitation, difficult, catching respiration, with inability to lie on the left side. At times, there were paroxysms of faintness and distress, resulting in profuse cold perspirations. Occasionally there was febrile action, but the pulse was so weak as to forbid bleeding. A blister was applied to the region of the heart, and under the administration of calomel, opium and colchicum, the disease soon left her, since which time, after recovering her strength, she has enjoyed her usual health.

Was this true rheumatism, or only "an analogous affection," which follows scarlatina? Watson, (Principles and Practice of Physic, p. 882,) whose opinion is entitled to great respect, is inclined to believe, that it is not genuine rheumatism, for he says: "I have noticed the painful joints were eased and benefited by friction, a circumstance which may help to distinguish this affection from true rheumatism. Another distinctive circumstance is, that although all these patients were children, the heart in no case became implicated with the tumid joints." The validity of this latter argument the present case, with its strong cardiac symptoms, must destroy. That pericarditis may not occur, after scarlatina, unconnected with rheumatism, we will not affirm, or even that there *might* not be a like occurrence, while the joints were, or had recently been, swollen with that disease, yet in such connection, as a general principle, the old law maxim, "noscitur a sociis," will be of safe application. It may be of little importance, whether this affection be, or be not, regarded as genuine rheumatism, yet, could the true pathology be ascertained, it might greatly influence our practice. As is true in that disease, so these pains are migratory, while their situation in the fibrous tissue, the aspect of the part, and the constitutional symptoms are all, likewise, similar. The effect of remedies is also the same in both: colchicum, mercury and opiates, proving in each, equally serviceable. Is it not possible, that from the peculiar irritability of the system, after scarlatina, the ordinary causes of rheumatism, acting in a slight degree, may be adequate to the production of the effects in question? and that, were the methods of cure, in severe cases, more decisive, (in mild cases only the mildest means should be used,) consisting

of such articles as were used above, rather than in external applications, so apt in rheumatism to render it metastatic, yet, which are chiefly recommended by those who have alluded to the affections, as following scarlatina, it would be less likely to prove wandering, and thus dangerous?

That the affection may, safely and properly be regarded as true rheumatism, we would also argue, from that most interesting feature of the foregoing case—the protrusion of the eye. There having been from our first attendance, a scanty secretion of thick and bloody urine, though symptoms of anasarca were never very prominent, yet when the swelling of the eye commenced, it was referred to an œdematous state of the lids; but as it increased, the impression became predominant, that it was hydrophthalmia, and was so regarded by a consulting physician, of large experience in diseases of the eye. The urine, however, exhibited no coagulability by heat, and the symptoms, including the serous chemosis, which prevented an examination of the internal structures, did not justify the diagnosis; and neither has the result (this disease) proved much more amenable to medicine than hydrophthalmia. On the supposition of its dropsical origin, while anodyne and mucilaginous fomentations and poultices were applied to the part affected, nitre and digitalis were administered, without advantage to the eye or in increasing the quantity of urine; and it was not until after calomel had been continued for some days that any benefit was perceived. The protrusion, however, continued nearly three weeks.

But the internal structure of the eye had received irremediable injury, and the sight was lost. The organ is now (November, 1844) smaller than its fellow, its atrophied condition being manifest, not only by inspection, but by laying the fingers, alternately, on each globe covered by its lid. There is, also, a duskiness of the conjunctiva, which has been persistent, except as it gives place to evident vascularity, from the effects of exposure to cold.

We now return to the views of Mr. Ferrall, alluded to in the early part of this article. That gentleman, encountering a case of rheumatism, accompanied or followed by a painful affection of one eye, with evident projection of the globe, three-fourths of an inch beyond its fellow, and, being unable to account for the protrusion, instituted a thorough anatomical examination of the eye and its investments. A distinct sheath was found, surrounding the globe, of fibrous consistence, of a yellowish white colour, and which protected the globe from the action of the muscles, &c. This fascia,* he calls, "tunica vaginalis occuli," and as it was this which was affected in the case which originated the investigation, and in two or three other cases, where a similar protrusion existed, he named the disease "rheumatic inflammation of the tunica vaginalis occuli." I cannot better present

* [This fascia was previously described by Tenon, in a paper read before the French Institute in 1804. See "Mémoires et Observations sur l'Anatomie la Pathologie et la Chirurgie, et principalement sur l'organe de loeil." Paris, 1816. Ed.]

my own views respecting the case, which occurred in my practice, and which differs from Mr. Ferrall's only as it was a sequel of scarlatina, than by transcribing his words:

"Protrusion of the eyeball, which, when attempted to be explained by uncomplicated periostitis, requires some stretch of imagination, appears a very simple and inevitable result of inflammation of the tunica vaginalis occuli. There are here no soft parts to receive and divide the pressure or protect the globe. The tunic is supported by other fibrous layers, on its outside, as well as by the muscles, of which they constitute the sheaths. Inflammation of this capsule must, then, be immediately followed by pressure, and when we recollect its conical form, and that, as happens in case of inflammation of other fibrous tissues, *effusion at once takes place* into the cellular membrane, connecting it to the ball of the eye, we perceive there is nothing to prevent the dislocation of the latter."

"This effusion into the cellular tissue will make itself evident in another way. The conjunctiva, at the place where it forms the fold, in being reflected from the eyelid to the eye, closes up the tunica vaginalis in front. At this point it will not only receive the pressure of the effused serum, but will become separated from its connection with the sclerotic coat, by the extension of the infiltration; hence the amber-coloured chemosis without vascularity of the conjunctiva. Chemosis, originating in conjunctivitis, always presents, in addition to serous infiltration beneath, one or other of the forms of hyperæmia. The chemosis of which we treat is, in uncomplicated cases, the consequence of effusion from a deeper source."

Art. VI.—*Observations on Obstetrical Auscultation.* By L. S. Joynes, M. D., of Baltimore.

The application of auscultation to obstetrical diagnosis and practice, must be considered one of the most important improvements which medical science has received during the present century. It has furnished us with a means of proving the existence of pregnancy, and of ascertaining the life, death, and suffering condition of the fœtus in utero, far preferable to any before known. It has also supplied us with an additional means of determining the presentation and position of the fœtus at the commencement of labour. The following observations will, it is hoped, contribute something towards a due appreciation of this mode of diagnosis, which has, of late years, attracted considerable attention. Into the generalities of obstetrical auscultation I do not propose to enter; they are, or should be, too well known to the profession at the present day, to require consideration.

Considerable difference of opinion prevails among different observers,

with respect to the utility of auscultation as a means of determining presentations and positions. M. Depaul, *chef de clinique* at the Hospital of the Faculty, in Paris, has given greater extension to this method than any other observer, and has made known the results of his investigations in an interesting thesis, presented to the Faculty some years since. His rules of diagnosis are founded on the two following leading principles, viz.:—

1. The sounds of the fœtal heart are transmitted to the ear with the greatest distinctness from the *dorsal* region of the fœtus, and particularly the left scapular region. The fœtus in utero, in fact, is compressed into a sort of ovoidal body, (by the folding up of the limbs in front,) corresponding to the shape of the cavity which contains it. The limbs, with a greater or less quantity of intervening liquor amnii, occupy the anterior segment; the trunk, the posterior segment of this ovoid. The heart being in the posterior half, and being there in relation with more solid conducting media than in front, its pulsations must, of course, be transmitted with greatest intensity from the dorsal region of the thorax.

2. The heart is nearest the cephalic extremity of the ovoid: its pulsations are conducted in every direction by the trunk; but necessarily to the greatest distance inferiorly, or towards the pelvic extremity of the ovoid.

Bearing in mind these principles, in order to determine the presentation, divide the uterus into two equal segments, by a line drawn horizontally across the middle of its axis. If the head, face or shoulder presents, the fœtal pulsations will be heard most distinctly *below* the line; if the breech, knees or feet, their maximum of intensity will be *above* this line. To distinguish a head or face from a shoulder, observe the direction in which the sounds are chiefly transmitted. If the shoulder be the presenting part, they will be transmitted most distinctly in a horizontal direction; if the vertex or face, the line of transmission will be vertical; that is, the sounds of the heart will be heard at a given distance above their maximum of intensity, with greater distinctness than at a corresponding distance laterally. I do not recollect that Dr. Depaul gives any stethoscopic signs, for distinguishing a presentation of the face from that of the vertex: such distinction must, in fact, be impossible, without the aid of an examination *per vaginam*.

To determine the position of the presenting part, suppose the uterus divided into two lateral halves, by a vertical line nearly coinciding with the median line of the body. Whenever the posterior region of the fœtus is towards the left side of the uterus, the fœtal pulsations will be heard to the left of the median line; when the back is towards the right side, they will be heard to the right of the median line. Thus we have the two fundamental positions. To ascertain the varieties of those positions, to distinguish an anterior from a posterior, (say the first of Baudelocque from the fifth,) is not so easy; generally, however, in the anterior position, the maximum of the cardiac sounds will be near the median line, while in the posterior, it will be more external, or towards the lumbar region.

Nothing can be simpler and more plausible than this system of M. De-

paul: it is apparently in such strict accordance with plain physical principles, as scarcely to require the test of experience for its establishment. M. Depaul, however, has adduced, in his thesis, a large number of cases in proof of its truth and general applicability. Dr. H. Van Arsdale, of New York, who has called the attention of the profession in this country to the uses of obstetrical auscultation, in a paper published in the *New York Journal of Medicine*, for September, 1843, sustains the views of M. Depaul. Professor Stolz, of Strasburg, I believe, also coincides with him in according a high degree of confidence to the results of auscultation, as applied to the diagnosis of presentations and positions. These views have not, however, received universal assent. Professor Moreau is quoted by MM. Barthe and Roger, in their treatise on auscultation, as maintaining the impossibility of arriving at an accurate diagnosis by the aid of auscultation alone. Professor Dubois admits the possibility of making out the presentations of the head and breech; but thinks that the stethoscope does not enable us to distinguish their several positions. (*Dict. de Méd.*, art. "Grossesse.") M. Cazeaux, one of the most recent authorities, says, that when the maximum of the fœtal pulsations is below the umbilicus, and on the left side, we may generally diagnosticate a first position of the vertex; when on the right side, a second position;* but it is next to impossible to say whether the position be anterior or posterior. We may *suspect* a breech presentation, when the maximum of the fœtal pulsations is above or on the level of the umbilicus, but examination *per vaginam* is necessary to confirm the diagnosis. Lastly, it is utterly impossible, by auscultation alone, to detect a presentation of the shoulder.

No practical accoucheur can underrate the importance of this method of diagnosis, if it should be found to merit all the confidence reposed in it by M. Depaul and others. It would not be interesting merely as a matter of scientific curiosity, but would often be appealed to in cases of difficulty, where the ordinary means of diagnosis fail us. When, for example, at the commencement of labour, it is impossible to reach the presenting part with the fingers, we are almost certain that some other part than the head presents, and it becomes a matter of importance to determine, if possible, at once, the particular nature of the presentation. In such a case, auscultation would afford us valuable assistance, supposing the method of M. Depaul to be well-founded. Unfortunately, there is too much reason to fear that this is not the case. Having enjoyed, while a resident pupil of the Dublin Lying-in Hospital, an advantageous opportunity for studying the subject of obstetric auscultation, I turned my attention particularly to this point, and became soon convinced, that the stethoscopic diagnosis of presentations and positions, was far from meriting all the confidence which the attractive expo-

* I use the terms, first and second position, here, in the sense adopted by Naegele, who includes, under the former, all cases in which the occiput is towards the left side of the superior strait; and, under the latter, all cases in which the occiput is towards the right side.

sition of M. Depaul had led me to repose in it. I proceed to relate some cases which justify this conclusion.

Case. I.—The maximum of the fœtal pulsations was in the left inferior region of the uterus, where they were heard with extraordinary distinctness. It was impossible, for a long time, to feel the presenting part: when the os uteri was fully dilated, it was found to be the face in Naegele's second position, (forehead to the right side.) Relying upon auscultation, the diagnosis would have been a presentation of the vertex in the first position, or, (with vastly less probability,) a presentation of the face in the same position, or, possibly, if the sounds of the heart had been found to be transmitted in a distinctly horizontal direction, a presentation of one of the shoulders. It being impossible to feel the presenting part, the first supposition was, of course, excluded. The result demonstrated the fallacy of one of M. Depaul's fundamental positions, viz., that the fœtal pulsations are always transmitted with greatest distinctness from the back of the fœtus. It seems to me easy to understand why the reverse should generally happen in face presentations. By the extension of the head, the heart is thrown into the anterior half of the fœtal ovoid, and becomes much more accessible to the stethoscope in this direction than behind; the back of the fœtus being separated from the adjacent segment of the uterus by a considerable layer of the liquor amnii. Of this, any one may readily satisfy himself, by a glance at an engraved representation of presentations of the face. M. Dubois, in the article before cited, maintains that this may be the case in other presentations; he states, in fact, in general terms, that it is an error to suppose that the fœtal pulsations are always transmitted with greatest intensity from the back of the fœtus.

Case II.—The maximum of the fœtal pulsations was, "very decidedly," *above the umbilicus*, and to the left side. A first position of the breech was, therefore, unhesitatingly diagnosticated, and with the more confidence, as a round tumour was felt above the umbilicus, which was taken for the head of the child. It turned out to be a presentation of the vertex in Baudelocque's fifth position, the head being expelled with the forehead under the pubic arch.

This case goes far to invalidate the evidence of auscultation, even in those circumstances where it would seem, *à priori*, to be least fallible. It is easy to understand why, in such a posterior position of the head, the sounds of the fœtal heart should have been less distinct than usual in the inferior segment of the uterus; but the very elevated position of the *maximum* must be explained by a circumstance which has not been sufficiently taken into account. The sounds of the fœtal heart are transmitted with such distinctness along the spinal column, that they may be readily heard through the stethoscope applied upon any part of it, or even on the sacrum or nates. Of

this I have satisfied myself, by the examination of the newly-born child. In the case just related, the stethoscope being applied upon the nates of the fœtus, (which, doubtless, constituted the tumour felt above the umbilicus,) with the intervention only of the solid parietes of the abdomen and uterus, received the sounds with greater facility than below, where it was separated from the thorax of the child by much worse conducting media.

Case III.—Presentation of the feet. The stethoscope was applied previously to the examination *per vaginam;* "but the heart was heard too low down to excite any suspicion of the nature of the presentation." The child was small, probably of the eighth month.

This case forms a striking contrast with the last. The low position of the maximum of the fœtal pulsations may be accounted for, *in part*, by the small size of the child.

Case IV.—The maximum of the fœtal pulsations was "so high in the abdomen as to leave no doubt of a breech presentation," it being at the same time impossible to reach the presentation with the finger. It was afterwards found to be a presentation of both hands. The shape of the uterus was peculiar, and might have served, perhaps, to correct the error of diagnosis. It did not rise so high as usual in the abdomen, but projected very far forward, and its upper surface was very broad and flattened: the motions of the fœtus were chiefly felt in the anterior projecting portion.

Presentations of this sort are always classed with those of the shoulder, and this case casts additional doubt upon the results of auscultation, in those cases where it has been generally considered as most certain, viz., in presentations of the breech. Comparing it with Case II., we are compelled to adopt M. Cazeaux's conclusion, that we can only *suspect* a presentation of the breech, when the fœtal pulsations are heard above, or on a level with the umbilicus.

Case V.—Presentation of the elbow. Before the complete dilatation of the os uteri, it was impossible to determine, by vaginal examination, whether it was an elbow or a heel that presented. The question was, in a great measure, decided by the stethoscope, the fœtal pulsations being heard low down on the right side; but there was no particularity to be detected in the direction of the *transmission* of the sounds.

While this case proves the incontestable utility of auscultation, when assisted by other means of diagnosis, it also serves, as far as a single case can go, to invalidate another of M. Depaul's principles, viz., that the fœtal pulsations are always transmitted to the ear with greatest distinctness in the direction of the trunk of the fœtus, and that, consequently, in shoulder presentations, this line of transmission is horizontal. The first part of the proposition would, probably, be generally true, if the trunk of the fœtus

were always in contact with the antero-lateral parietes of the uterus, and thereby easily accessible to the stethoscope. But when it is posteriorly situated, and separated from the stethoscope by the intervention of a greater or less quantity of liquor amnii, and portions of the intestinal mass, the line of transmission of the pulsations must be far more obscure and difficult to be satisfactorily made out. Supposing, however, that it could always be easily ascertained, it scarcely follows, I conceive, that it should always be horizontal in shoulder presentations. It does not generally happen that the trunk, in such presentations, is placed in a strictly transverse direction; the head being in one iliac fossa, the superior portion of the trunk is at the superior strait; but the inferior and more considerable portion of it ascends towards the fundus of the uterus, being, more or less, bent laterally upon itself, so that the position of the fœtus is rather oblique than transverse.

Again, it not unfrequently happens that, in shoulder presentations, the head is near the symphysis pubis, and the trunk occupies a position nearly coinciding with the direction of the sacro-pubic diameter of the superior strait. In all such cases, the line of transmission of the fœtal pulsations should be rather vertical than horizontal.

Case VI.—The maximum of the fœtal pulsations, when the os uteri was dilated to about the size of a half dollar, was *below* the umbilicus, and to the *left* of the median line. They were also heard above the umbilicus on the same side, but more feeble, and on the right side, low down. The head was plainly felt above the umbilicus on the left side. It was found, notwithstanding, that the breech presented, in the second position, the sacrum being very far forward, near the symphysis pubis.

Here we have a double error, affecting both the presentation and the position, for the stethoscope would have indicated a presentation of the vertex in the first position. It is evident that the fœtus occupied an inclined position in the uterus, the head and upper part of the trunk being on one side of the median line, the lower part on the opposite side: the low position of the heart was the necessary consequence of this obliquity. This fact suggests a source of fallacy which may, perhaps, be not unfrequently met with.

The preceding six cases included the majority of presentations of *living children* other than those of the vertex, which occurred while I was in the hospital, and in which the circumstances permitted a careful stethoscopic examination. It is proper to add that there were four cases of breech presentations, (to which I may add a fifth, observed elsewhere,) in which the maximum of the fœtal pulsations was found above or at the level of the umbilicus. I recollect no case of presentation of the vertex, with the single exception related above, (Case II.) in which the maximum was not heard below the umbilicus.*

* It will be seen that instead of supposing the uterus divided into two *equal* segments by an imaginary horizontal line, as M. Depaul does, I have followed MM.

From the cases related, however, we may infer that auscultation can, at best, only lead us to a *probable* diagnosis, and that it is liable to fallacy even in those cases where its indications are most certain; that is, where the maximum of the double of the fœtal heart is above or at the level of the umbilicus; for we have one case of presentation of the vertex, another of the hands, in which the maximum was so situated. With respect to the class of cases in which the maximum is in the inferior segment of the uterus, we are in such generally authorized to diagnosticate a presentation of the vertex, but only because such presentations are vastly more frequent than those of the face or trunk: in order to decide with certainty upon the existence of the latter, we must resort to external palpation and vaginal examination. If the face be found to present, in determining its position by auscultation, we must, I apprehend, reverse the rule followed in other presentations, and conclude that the *chin* is towards the point where the maximum of the fœtal pulsations is heard. Even in other presentations, Case VI., shows that we cannot always determine the fundamental position, (that is, whether the occiput or sacrum is towards the left or right sides of the superior strait,) by auscultation. As to deciding whether the position be anterior or posterior, that is, whether the occiput, &c., be in relation with the acetabulum or the sacro-iliac symphysis, great difficulty will often be experienced. In the former case, however, the maximum of the fœtal will generally be found nearer the median line, just above Poupart's ligament. In presentations of the shoulder, where the position is doubtful, auscultation will doubtless enable us to determine it with much certainty, the head being necessarily on the side where the heart is heard most distinctly. But it is evidently impossible to determine by auscultation which shoulder presents.

It will be perceived that these conclusions coincide almost exactly with those above quoted from M. Cazeaux.

Although, therefore, auscultation does not by itself enable us to arrive at a certain diagnosis of presentations and positions, yet, when combined with other means of exploration, and in cases where those offer doubtful results, it is capable of affording us most important aid. In a case like the fifth above related, for example, its utility is apparent. Also, where we are in doubt whether the face or the breech be the presenting part, the stethoscope will enable us to decide the question with a great degree of certainty. Palpation of the abdomen will sometimes enable us to correct its indications in cases

Dubois and Cazeaux in placing this line at the level of the umbilicus, which is rather above the position assigned to it by M. Depaul. The diagnosis between presentations of the head and those of the breech is thereby rendered more certain than it would be if M. Depaul's rule were strictly followed. In the posterior positions of the vertex, it would be often very difficult to decide whether the maximum of the fœtal pulsations was above or below a line crossing the uterus in the *middle* of its long diameter, because, as we proceed posteriorly towards the lumbar region with the stethoscope in search of the maximum, we are obliged likewise to *ascend.*

where the examination *per vaginam* is unavailable, as where the doubt is between a presentation of the shoulder and that of the face; in the former case it is often possible to feel the head in one or other of the iliac fossæ.*

It has been pretended that the position of the child may be determined by the placental or uterine souffle, the anterior surface being towards the region where this is heard. (*Hohl*, quoted by Velpeau.) No one, who has had any considerable experience in obstetrical auscultation, will allow the least weight to this pretension. It is sufficient to remark that the souffle is very often heard in two different and diametrically opposite points. M. Depaul has also abundantly proved that there is no necessary or constant relation between the situation of the souffle and the point of insertion of the placenta.

A much more important application of the stethoscope is to the determination of the life or death of the fœtus in utero. Some difference of opinion prevails as to the degree of certainty which auscultation possesses in relation to this all-important matter. It is the opinion of some that the absence of the fœtal pulsations is no proof of the child's death. MM. Barthe and Roger admit that the position may be such as to render them inaudible; and M. Stolz holds that this is the case in all posterior positions, unless some part of the trunk of the fœtus be in contact with the lateral segment of the uterus, and thereby accessible to the stethoscope. M. Cazeaux, on the contrary, is of opinion, that although the posterior position of the fœtus, the presence of an excess of the amniotic fluid, the interposition of portions of the intestines between the uterus and abdominal parietes, and the presence of ascites, may render the fœtal pulsations more or less indistinct, they can never render them inaudible; and he states, that in from seven to eight hundred pregnant women auscultated by him at the Hospital of the Faculty, he never met with one in whom he failed, after the 6th month, to recognize the sounds of the fœtal heart when the child was really living. M. Dubois is

* I may be here allowed to mention a most curious case which, so far as I am informed, has few parallels on record. It was a presentation of the breech in the first position: it was impossible for several hours to reach the presenting part with the finger, but the nature of the case was rendered absolutely certain by auscultation and palpation of the abdomen. The fœtal heart was heard over almost the whole of the left side of the abdomen, but the maximum was evidently above the umbilicus. The head of the fœtus was distinctly felt through the abdominal parietes, and the *sutures and fontanels were plainly distinguishable to the touch.* The sagittal suture was directed transversely; the anterior fontanel, whose four angles were easily recognized, was near the median line, and the posterior, equally distinct with the former, was towards the left side. It was a fifth child of uncommon size.

M. Velpeau, while treating of the posterior obliquity of the uterus, relates a case in which the head, instead of occupying the superior strait, projected over the symphysis pubis almost to the vulva, thereby so distending and thinning the anterior segment of the uterus and the abdominal muscles as to render the sutures and fontanels quite distinct to the touch. The elder Hamilton, also, I believe, mentions a somewhat similar case, in which the sutures and fontanels were so easily distinguishable as to cause him to apprehend that a rupture of the uterus had occurred.

convinced that these sounds can "scarcely ever" be inaudible in the latter months of pregnancy. M. Hohl states in general terms that they can *always* be heard when the child is living.

I am convinced that the cases are extremely rare in which an attentive examination will not enable us to detect the pulsations of the fœtus when it is living, and that no possible position of the child can render them inaudible without the concurrence of other unfavourable circumstances. During my residence in the Lying-in Hospital more than five hundred women were delivered: auscultation was practised by the other resident pupils and myself in every case where circumstances allowed it to be done: I have no means of determining the precise number thus examined, but I have no doubt that it amounted to three-fourths of the whole number. Out of this number but a single case occurred which was calculated to throw the slightest doubt upon the results of auscultation as applied to the determination of the life and death of the fœtus. A woman, whose abdomen was much distended by an excessive quantity of amniotic fluid, was auscultated by two of the resident pupils at the commencement of labour, and the fœtal pulsations were indistinctly heard in the right inferior segment of the uterus. Some time afterwards, shortly before delivery, auscultation was again practised, but, it being impossible to detect the sounds of the heart, it was concluded that the child was dead: it was born alive, however, but died after a few feeble cries and inspirations. The presentation was natural. It may be interesting to state that the autopsy revealed an inflammation of the right pleura and peritoneum, with a copious fibro-gelatinous effusion, and extensive adhesions of the intestines. It is obvious that the child was dying at the moment of the second examination, which circumstance, together with the presence of an unusual quantity of the liquor amnii, accounted for the sounds of the heart not being audible.

Dr. Montgomery relates a case in which pregnancy was complicated with ascites, and in which the most careful and repeated examinations failed to detect the sounds of the fœtal heart. (Cyclopædia of Pract. Med., art. "Pregnancy.") The pregnancy, however, was no further advanced than the seventh month.* While it would be erroneous, therefore, to maintain that the fœtal pulsations may *always* be heard after the sixth month, when the child is living, we may, making full allowance for all unfavourable circumstances, establish the following law as admitting of no exception: *In uncomplicated pregnancy, at the full time, it is always possible to hear the sounds of the fœtal heart when the fœtus is alive and healthy.*

The superiority of auscultation over all other means of ascertaining the death of the child during labour is immeasurable. Those formerly relied upon, such as the cessation of the active movements of the fœtus, the fœtor of the vaginal discharges, the detachment of the epidermis under pressure,

* Might not M. Nauche's idea of auscultation *per vaginam*, by means of his *metroscope*, be usefully applied in doubtful cases of this sort?

the state of the umbilical cord, and the discharge of the meconium, are either uncertain or often unavailable in the circumstances in which their evidence is most urgently required. Auscultation, on the contrary, is applicable under all circumstances, and always with equal certainty. It makes known not only the death of the fœtus, but the precise moment of its death; it likewise enables us to recognize disturbances of the circulation, (such as slowness, feebleness, irregularity, and intermittence of the pulsations of the heart,) which indicate a suffering condition of the fœtus, and would terminate fatally were not timely assistance rendered. We are thereby furnished with the most important and practical indications as to the moment of interference, and the particular method of delivery. This consideration is sufficient to entitle auscultation to the studious attention of the accoucheur, and to prove that he who neglects it wilfully deprives himself of one of the most important aids in practice which science has placed at his disposal.

The uterine souffle has been relied on by some writers as a means of determining the life or death of the child. Its indications are as uncertain here as in most other cases where it has been proposed as a means of diagnosis. I have the notes of three cases in which the souffle was heard, (in one case "loud and extensive,") notwithstanding the children were, in all, not only dead, but putrid. Besides, even when the child is living, it is frequently absent at intervals. The same fallacy attends the souffle in the diagnosis of twin pregnancy, to which it has been applied by MM. Stolz and Hohl. It follows, from the observations of M. Depaul, that it is more frequently heard at two opposite points, even in single pregnancies, than at a single point. Nor do the fœtal pulsations enable us, in all cases, to determine the existence of double pregnancy. Although it is often easy to ascertain the existence of two hearts, beating with different degrees of velocity, the relative position of the children is occasionally such that the sounds proceeding from the one so mask and confuse those proceeding from the other, which is more posteriorly situated, as to render it impossible to distinguish them. It should also be remembered that it now and then happens, where there is but one fœtus, that the sounds of the heart are propagated so remotely and with such distinctness, as to render it a matter of no small difficulty to determine whether they originate from one or from two centres.

ART. VII.—*Tumour of the Neck of extraordinary size successfully removed.* By P. C. SPENCER, M. D., of Petersburg, Va. (With two Wood Cuts.)

THOMAS WILKINSON, a native of the neighbouring county of Sussex, 37 years of age, placed himself under my care at the beginning of the present year, for the surgical treatment of an enormous tumour of the neck. The

accompanying sketch, by an accomplished friend of the writer, conveys an accurate idea of his situation and appearance at the time.*

The history of the case, collected from accounts given by himself and friends, was as follows:

The tumour had been in existence thirty years. It was described as being located, when first observed, at the angle of the lower jaw, and beneath the lobe of the left ear. Its presence and growth being wholly unattended by pain or annoyance of any kind, it does not seem to have created anxiety or to have attracted much notice during the period of his youth. This apathy, however, was not of long duration. Before he reached his 20th year, its great size, and the deformity and annoyance it occasioned, led him earnestly to desire relief.

It was then sixteen or eighteen years before the time of his application to me that he, for the first time, sought surgical advice and assistance. The tumour was at that time represented as being double the size of a large orange, and *firmly embedded beneath the angle of the lower jaw.*

He was immediately placed under treatment necessary to prepare him for its excision by a distinguished and very bold surgeon of this place, since deceased.

When the day fixed for it arrived, however, he was, much to his disappointment and chagrin, dismissed without the operation, the surgeon urging as a reason for the postponement that he had not been able to prepare himself with some necessary preliminary. Wilkinson was desired to return home,

* The dotted lines in the fig. designate the linen patches on the tumour.

with the assurance, that so soon as this could be accomplished, he should be sent for. This promise was never fulfilled. Whatever may have led to the postponement on the part of the surgeon, the impression was created on the mind of the patient and his friends that the operation required was deemed one of a nature too hazardous to be attempted with any prospect of success. This impression was subsequently confirmed as the case wore on, since the many medical men, who, from time to time, obtained a sight of the disease, as the man's business called him from place to place, were almost unanimously of opinion, that the safe removal of the tumour was beyond the reach of art. With this conviction, the man patiently resigned himself to his fate, awaiting the issue.

But the disease did not remain idle. Mass after mass of degenerate structure continued to shoot out from every side; reaching downwards it touched the shoulder, the whole breadth of which it proceeded to occupy, and then on both breast and back, as the drawing exhibits, it ultimately fell in large folds. Finally, its great weight, acting upon a frame already worn down and emaciated by the ceaseless irritation of its presence, precluded all employment, allowing him to remain in an erect posture for a short period only, and that at long intervals. In addition to all this, decay ultimately set up in the morbid mass. Patches of ulceration appeared on its periphery, resulting apparently from imperfect nutrition, caused either by pressure or lesion upon its nutritive vessels. Abscesses formed in its interior, tunneling it with large sinuses, which constantly discharged offensive matter, and hectic fever supervened.

Feeling that he could live but a short time as he was, and being convinced that the excision of the tumour afforded him the only chance for his life, the patient had arrived in town with the determination to have the operation attempted.

After a minute and tedious examination of his case, with several professional friends to assist me, we found it almost impossible to come at any thing like a positive opinion as it regarded the safety or practicability of an operation. This ambiguity and embarrassment arose from the exceeding difficulty of ascertaining correctly the parts involved in the attachment of the tumour, and in defining the nature of the operation required for its removal.

A glance at the figure will, in part, exhibit the perplexing nature of this inquiry. Firmly attached by a strong and almost unyielding band to the whole side of the neck, this shows the manner its sides shelved over all around, below, behind and before, wholly precluding any thing like a satisfactory examination, since there was but a narrow space for the hand to pass under to effect the exploration. Nor was this all; admitting that a free examination of the attachments of the tumour could have been made, its immobility on its stem, and the extent of these attachments were so great that nothing positive could have been ascertained of the parts involved likely to be wounded in an operation. Nothing is easier than to prove this by a

glance at the bounds of its attaching surface. Extending from an inch above and behind the lobe of the left ear, these ran posteriorly on a line with the sterno-cleido mastoid muscle, (which it covered with the great vessels of the neck,) down to within an inch of the clavicle. In front, its connection ran from the ear over the cheek to a point midway below the chin, where it passed again downward in a line with the trachea to the top of the sternum. The whole formed a triangular connection or band, firm and almost immovable, at least six inches through its longest line.

It was a prominent question in the inquiry as to whether there would be danger or probability of wounding either one of the great vessels of the neck. This result, under ordinary circumstances, would not have been feared by the surgeon; but, in the present case, the accident could but be fatal, for the very plain reason, that the courses of these vessels in their entire extent was so completely covered by the diseased mass, which was so unyielding and immovable as to preclude entirely the possibility of securing them by ligature or other means, did it occur.

After being made fully sensible of these difficulties, the patient still persisted in his determination, and the operation was therefore undertaken as a dernier resort.

It was necessary to place him on a more generous diet than he had lately allowed himself, in order to insure him sufficient strength for the trial. Some eight or ten days sufficed for this result, and on the 9th of January, 1844, the operation was performed. A narrow table was provided, in a room tolerably well lighted, on which the patient was placed, lying on his right side, with his head elevated. Whilst in this position, in the presence, and with the assistance of Drs. J. F. Peebles and Jonas, W. Michial, all of Petersburg, I proceeded to operate.

My first design was to raise the tumour from behind, by cutting it away from the whole line of its posterior attachments, freeing it thereby from the great vessels of the neck as early as possible. For this purpose an incision was commenced about two inches below the ear, and carried on and down to the tumour, to within half an inch of the clavicle. The skin was carefully, but with great difficulty, (so closely was it agglutinated to the diseased mass,) dissected off to the neck. When this was completed, I cautiously proceeded to divide the adhering bands which had been exposed by the incision. The sterno-cleido mastoid muscle, attenuated to a mere filament, had been partly brought into view, and being closely affiliated to the diseased mass, was divided across, above the point where it is decussated by the omohyoideus.

When, by these means, its lower part had been freed, so that the tumour could be raised, the carotid artery was plainly seen beating in front of the line of the original incision, but now about an inch backwards from its still adhering surface.

The tumour was next held, raised, and borne slightly forward, when the dissection was carried on without danger of wounding the vessels. The

very strong and firmly adhering bands which connected the excrescence with the mastoid process of the temporal bone, with the tuberosity of the occiput, and with the transverse processes of the upper cervical vertebræ, were next severed in the order in which they presented themselves.

Up to this time no vessel of any importance had been wounded; the hemorrhage had been slight, the only embarrassment to the operation arising from the unpleasant strangulation, resulting from the pressure of the tumour on the trachea, as the patient lay, through the unavoidable manipulations, on it, already described. Starting under the ear, at the origin of the first, another incision was next extended through the skin down to the tumour, across the cheek to the chin, and then carried downwards on a line with the trachea, finally terminating in the first just above the clavicle.

Much time was next required in removing the adhering skin from the surface of the tumour, which was carefully done through the whole line of the incision, that it might serve as a covering to the wound, and many considerable vessels were wounded, two of which, one of them near the angle of the inferior maxillary bone, the other beneath the symphysis, requiring the prompt application of the ligature. When this tedious and exceedingly painful dissection was completed, the exhaustion of the patient was so great that I was forced to suspend my dissection about the throat in order that he might be allowed to breathe with the necessary freedom. But all its adhering bands had been severed, and the tumour could be raised; and, so soon as the patient recovered from this partial syncope, its final excision was readily completed.

Though overcome and greatly exhausted, the patient was found to be in quite a favourable condition; his pulse was good, and he had not suffered so much from hemorrhage as had been expected, the principal loss being, in fact, venous blood. A reasonable time having elapsed, and there being still little or no decrease of this oozing from the divided veins, a weak solution of creosote was applied to the wound. It had the desired effect almost immediately, and I proceeded to the dressing. The flaps of the skin, which had been left, covered the wound very well, considering that the nature of the case, leaving no choice in the matter, had obliged us to dissect without regard to this object, and having carefully brought them together, they were secured, and the wound closed by straps of adhesive plaster. The dressings were completed, and the patient placed in bed in forty minutes from the time the operation commenced. No accident occurred, and the night succeeding the operation was spent quietly and comfortably. On the second day there was a slight rise of fever, which was at once successfully combated by a mild purgative.

It is considered entirely unnecessary to detail further the progress of the case, for after this time no constitutional symptom arose, and its management became entirely a local affair.

The improvement of the general health proceeded *pari passu* with the healing of the wound, which, under the simplest treatment, was gradual yet progressive. On the 23d of January he left his bed entirely, and, late in February, he returned home in good health, and so altered in appearance that his nearest neighbours did not at once recognize him.

He has been seen within a few weeks by the writer, and he reported that the improvement of his general health had steadily progressed since his return home.

The tumour weighed within a fraction of twelve pounds. It evidently belonged to the class of non-malignant tumours. A further estimate of its true nature cannot be made, since, preferring to preserve it as a specimen, no dissection was made into its structure.

ART. VIII.—*Surgical Cases.* By EDWIN HALL, M. D., of Saco, Me.

CASE I. *Encephaloid disease of the tibia and soft parts—amputation—cure—re-appearing in the right lung—death—autopsy.*—May 3d, 1842, was called to see Thomas, son of James H—, aged 15. He was tall, of spare habit, with dark hair and eyes, and a very fair and light complexion. Though delicate in appearance, I learned that, previous to this attack, he had enjoyed good health. He complained of an intense and deep-seated pain in his right leg, which was not confined to one spot, but extended from the tubercle, giving attachment to the ligamentum patellæ, half way down the shaft of that bone. The patient located the pain in the bone—said "it was sometimes on the front, sometimes on the back side of it." The limb, though slightly swelled, had a natural look and feel, and was not tender to the touch, except in one spot of the bigness of a dime, just below the attachment of the ligamentum patellæ. No cause could be assigned for the origin of the disease farther than this, viz., the patient thought he hurt his leg sliding down hill the previous winter, and it had pained him occasionally since that time. A small opening had been made into the limb by the

physician who attended him prior to my being called; but for what purpose I know not, as there was no evidence of a collection of matter or other fluid. The wound, though open, was free from discharge. As regards the general condition of the patient, his bowels were regular, tongue clean, appetite good, and pulse but little accelerated. Not being able to determine the nature of the disease, my prescriptions were such as the symptoms indicated.

In the course of two or three weeks, it became evident that the disease was rapidly increasing, but whether it would prove to be malignant, was a question as yet not easy to be determined. The limb had been gradually increasing in size, and was now somewhat discoloured. Feeling, as I supposed, a fluctuation on the anterior and external face of the limb, I made an incision into it. Nothing but a thin sanious matter was discharged, indicative of disease of the bone. A probe readily passed so far into the wound as to be felt on the opposite side of the limb. A considerable flow of blood followed the withdrawal of the probe. A few days after I made the opening, it was observed that the limb was increasing in size with more rapidity than it heretofore had done; that the edges of the wound had begun to avert and put on a fungous appearance. As soon as I observed this fungus, I apprised the parents of the malignancy of the disease, and advised amputation. But hoping against hope, they wished to defer it for a few days.

The only relief which the patient could get from the intense pain he has suffered since the commencement of the disease, was in large and often repeated doses of morphia, and poultices made of the fresh juice of conium maculatum.

June 4th. Dr. Hubbard, of Hallowell, being in town, was called in, and advised immediate amputation.

Condition of the patient at this time.—Much emaciated; pulse 130; glands in the groin not enlarged; limb below the knee exceedingly enlarged, very elastic when percussed, and of a purple tinge. A fungus of the size of a hen's egg protrudes from the wound made a week or more before. The lymphatics running over the diseased portion, resembled in size small varicose veins, and were filled with an amber-coloured fluid.

June 5th. Assisted by Drs. Tewksbury and Palmer, I amputated the thigh at its middle. The patient bore the operation remarkably well. Very little blood was lost.

After dressing the stump, we turned our attention to the examination of the limb. On cutting into it, a large quantity of dark fluid matter escaped, in which were irregular masses of what appeared to be muscular substance in a state of disorganization. In fact, the soft parts were so entirely disorganized, for the space of six or eight inches from the attachment of the ligamentum patellæ downward, that neither muscular substance nor blood-vessels could be recognized. Removing the fluid matters above mentioned, we found deposited on the posterior face of the bone, for the space of four

inches below its head, a whitish substance, without organization and bloodless. In some places this substance was of the colour, and as soft as the cortical substance of a recent brain. In other places it was quite firm and hard, but without that elasticity and grating when cut, peculiar to scirrhus. Patches of this were observable on other portions of the shaft of the bone, within the confines of the disease. On the anterior and antero-external face of the bone, commencing an inch below its articular surfaces and extending down two and a half inches, we observed alterations in texture worthy of notice. A little external to the crest of the tibia was a fissure from an eighth to a quarter of an inch broad, which extended horizontally through the bone. The texture of the external lamellæ of the bone, for a considerable space about this fissure, was entirely and uniformly destroyed. It resembled a carious bone, and was quite dark-coloured. To a considerable extent around this fissure, as it traversed the bone internally, were the same alterations in texture which we have noticed externally. The specimen is in my possession.

The patient made a rapid recovery, and the stump healed kindly. During the summer he was as active as usual, and gained flesh. Still his countenance was pale and his pulse quick. Various alterative remedies were prescribed, but he received no benefit from them.

Was again called to see him, Feb. 6, 1843. He complained of pain in his right side, in the region of the liver. Bowels costive; tongue coated; pulse 130; skin dry. Cal. and rhei.

7*th*. Cathartic operated; no better. Blister to the side.

8*th*. More comfortable, but still complains of pain in his side.

On stripping him and measuring from the xiphoid cartilage to the dorsal vertebræ, I found the right side to be three inches larger than the left. There was a lateral curvature of the vertebral column to the left, of an inch, commencing at the fourth dorsal and terminating at the lumbar. Dull sound on percussion over the whole of the right side of the chest. Respiratory murmur inaudible. This condition of things convinced me that his former disease had re-appeared, and consequently that his case was hopeless.

10*th*. Right side measured as before, is four inches larger than the left. Dyspnœa great; some cough; raises some; appetite good. Ipecac. and morphia.

12*th*. Cough and expectoration have ceased, but the dyspnœa remains. Cannot lay in the horizontal posture. Has some difficulty in swallowing his food, which I attribute to the pressure of this immense tumour on the œsophagus.

23*d*. Patient has been getting gradually worse since last report; is now very feeble. Dyspnœa excessive. Superficial veins on the right side of the thorax enlarged. Expired suddenly in the evening.

Autopsy twenty-three hours after death.—Assisted by Dr. M. Call, we commenced the examination by opening the abdomen. The liver lay,

almost wholly on the left side of the median line, as also the gall bladder. The stomach was quite small; its pyloric orifice lay almost directly below the cardiac. The transverse and descending colon was contracted to less than half its usual size, and was very light-coloured. The other organs normal.

Thorax.—The pericardium contained four ounces of serum. The heart was healthy, but forced out of its position to the left. Removing the heart, we found the left lung so much compressed by the right, that it appeared mysterious to us how it could have performed its functions so as to have sustained life for the last three or four weeks of the patient's existence. In its substance were two tumours, one of the size of a hen's egg, the other of the size of a walnut, granular, and resembling, more than any thing else, coarse-grained loaf sugar moistened with water. They appeared quite different from any thing observed in the other lung. No tubercles were observed in this lung. The right lung was one mass of disease. It extended down to within two inches of the right iliac crest, and filled nearly three-fourths of the whole cavity of the thorax. It was firmly adherent to the costal pleura, and resembled a lung only in shape. The division into lobes could not be traced. In the apex was a cavity containing about eight ounces of a dark turbid fluid, little thicker than serum; cutting into the lung, the outside to the depth of an inch, more or less, was generally very light-coloured, resembling the medullary substance of the brain. The central portion was rather dark-coloured, as if stained with blood, and fibrous when torn. No blood-vessels or bronchial tubes could be found. Some parts of this mass were soft, others hard and cartilaginous. The soft parts, which were always white, when cut, presented a mammillated appearance, as if the morbid matter was deposited in dilated air-cells. There was no unnatural smell about it; neither was there about the leg which this lung precisely resembled. This morbid mass, when removed and freed from fluids and other foreign matters, weighed ten and a quarter pounds.

Case II.—*Femoral hernia of the right side—operation twelfth day—cure.*—June 2d, 1842, was called to Mrs., wife of J—— M——, aged 50; found her suffering from femoral hernia of the right side. I learned that the rupture first happened fifteen years ago; that the tumour had been constantly down for a long time, and that it had often troubled her. The present attack, which commenced six hours prior to my being called, was far more serious than any she had ever had. The tumour was about the size of a hen's egg, and very hard. Bled her to syncope, and then attempted reduction; but the bleeding made no impression on the tumour. The remedies usually resorted to were successively tried, but without any effect.

3*d.* Patient no better; pulse but little accelerated; has vomited a good deal. I strenuously urged her to be operated on, but she would not consent.

4th. Dr. Hubbard was called in; patient getting worse; some febrile movement; vomiting continues. An operation was again strongly urged upon her, but she would not consent. Opium in four grain doses till a decided effect is produced. Plaster of extract of stramonium to the tumour.

5th. Patient much the same as yesterday. When fully under the influence of the opium, no impression could be made on the tumour.

10th. Since last report the patient has been gradually getting worse. The attacks of vomiting have been exceedingly troublesome, particularly one or two hours after taking nourishment. To-day the vomiting is stercoraceous. She has had large and often-repeated doses of morphia, to allay the irritability of the stomach. Pulse 130; bowels somewhat tympanitic.

14th. Patient very feeble; countenance extremely anxious; pulse 130; hiccough; has had stercoraceous vomiting at intervals since last report; bowels very tympanitic; nothing has passed them since the first day of June.

Shortly after I left, her husband called upon me, stating that his wife was willing to submit to an operation, and that he wished to have it performed immediately. I remarked that I thought it too late for an operation to be successfully performed, and that, under existing circumstances, I did not wish to undertake it. He was, however, so urgent in his request, that I at last consented. Dr. Ford was called in to assist. The operation was performed in the usual manner. We found the peritoneum much thickened, and firmly adherent to the cellular tissue externally. There was no omentum in the sac. The intestine was chocolate-coloured, and adhered firmly to the neck of the sac. It was so tender, that in endeavouring to insinuate a probe through the stricture, it passed into the intestine, though the utmost care and caution were used. Nothing remained then but to open the intestine and divide the stricture, which was accordingly done, when a large quantity of gas and fæcal matter escaped.

On the inner side and beneath the intestine, as the patient lay on the bed, I observed the appendix vermiformis, which indicated pretty conclusively, I thought, that the strangulated portion must be a part of the cæcum. I do not remember of ever having seen a case reported, in which this appendage was protruded into the hernial sac.

My patient began to rally soon after the operation. She was very much troubled with diarrhœa for the first week or more. Food would pass through the wound, almost unchanged, in one or two hours after being swallowed. All attempts to regulate the discharges by the artificial opening were of no avail, for in spite of all the tents, compresses and adhesive plasters I could use, fæcal matters would escape from the wound almost every hour in the day.

In about a week after the operation, the patient had a discharge by the rectum; the next day another of the same consistence as those by the wound. In another week the natural course of the bowels was fully established, and the discharges by the artificial opening ceased.

Remarks.—In reviewing this case, I am of the opinion that the patient owed her life to the opium and its preparations, which were freely administered to her during her sickness. Nor do I think that she could have survived till the twelfth day had it not been for this drug. Sulphate of morphia was the preparation used in the latter part of her sickness, as it agreed better than opium. It was generally administered in half grain doses, after an attack of vomiting, and, in many instances, would serve to prevent another attack till one or two hours after taking nourishment. Its influence on the mind of the patient was none the less salutary than its effect on the stomach and bowels. She was of a nervous and excitable temperament, and thought from the commencement that her case would terminate fatally. The reason assigned why she would not be operated upon was, that no matter what was done for her, she should die, and that every individual within her knowledge who had been operated upon did die. When under the influence of morphia, she was cheerful, and expressed but little anxiety respecting the termination of her case.

I regard opium as of great value in the treatment of hernia of aged people. I was, in August, 1842, called to see an aged lady labouring under femoral hernia. She was so feeble as to forbid the use of debilitating remedies. Half a grain of morphia was administered, and the hernia was reduced in about thirty minutes. About six months afterwards, I was again called to see her for the same difficulty. The same dose as before was administered, and not being able, after waiting the same length of time, to reduce it, I repeated the dose. Half an hour after the second dose, the hernia was easily reduced. A year afterwards, she was operated on by another physician for the same difficulty, he being unable to reduce it.

A neighbouring physician of respectability informed me that he once gave a patient a full dose of opium, after trying the usual means for reducing strangulated hernia without avail, to keep him quiet till daylight, in order that he might operate on him; and that when fully under its influence, the hernia was spontaneously reduced. The good effects which resulted from the use of opium in these cases, were attributable quite as much to the tranquillity of mind which it produced as to the relaxation of the system. One great cause of failure of reduction in many cases, is the fears and mental excitement which patients labour under when suffering from hernia. An article which, like opium, will allay this excitement, must be of great value.

Saco, *York Co., Me., Oct.*, 1844.

ART. IX.—*Cases of Strangulated Hernia.* By A. B. SHIPMAN, M. D., Prof. of Anatomy in La Porte College, Inda.

CASE I.—A son of George A. Blodgett, æt. 8 years, very fat, had congenital inguinal hernia, which has often been strangulated. The mother, by giving a full dose of the camphorat. elix. opii, was always able to reduce it after his getting to sleep. It became strangulated on the evening of the 8th April, 1843, when the mother, after using her ordinary remedy, found herself unable to reduce it, and sent for a physician. Dr. Wm. J. Willson first saw him, and bled him to faintness, and made an attempt to reduce it; failing, he used several other remedies with like want of success. He called in Dr. Homer D. Jewett, and they both tried the taxis for some time. I saw him late in the evening of the 9th. The hernial tumour was large, hard, and so tender as not to be handled; while the whole abdomen was much distended and very sore. As the taxis and all the usual remedies for strangulation had been tried faithfully by the two medical gentlemen who had treated the case, I ordered a full dose of morphia, to be repeated until some degree of narcotism was produced, (a procedure which had often proved successful in my hands,) and cold applications to the tumour, and the hips to be elevated. April 10th, 10 o'clock, A. M. Visited him again; he had slept soundly through the night, and was so much under the influence of the morphia as to allow the tumour to be handled without complaint. The pulse was more calm, and less fever than on the evening previous, and less distension of the abdomen. The taxis was again resorted to with no better success than before, and the operation decided upon. This I proceeded to perform with the assistance of Drs. Willson and Jewett in the usual manner. The stimulus of the knife seemed to rouse his faculties; and, by the time the hernial sac was opened, he became perfectly outrageous, kicking, screaming, and making all manner of contortions of his body, notwithstanding two or three stout men had hold of him. After he was pacified in some measure, I proceeded with the operation; found about an ounce of liquid in the hernial sac, and about four inches of the small intestines in the stricture: the intestine was much distended with fæces and gas, and was highly injected and of a dark purple colour. I divided the stricture, which was at the inner opening of the ring, and was inspecting the intestine preparatory to returning it into the abdomen, when the patient began to struggle with all his might, and the assistants relaxing, perhaps, a little of their hold, a large quantity of small intestines began to roll out, fully distended with gas and fæces. This my assistants were unable to prevent; and the terror of the patient, at seeing his intestines roll out upon the abdomen, increased his efforts to escape from the hands of those who held him. The caput coli escaped with transverse arch of the colon, and this, on examination, was found filled with lumbrici, which could be distinctly felt through the coats of the intestines. After faithfully endeavouring to return them, I found it necessary to enlarge the opening in the abdomen with the probe-pointed bistoury, when the intestines were returned, although the child exerted himself with all his might against it. Returning the intestines occupied twenty-five minutes or more. The wound was closed with sutures and adhesive plaster, and a compress with a strong T bandage was applied and fastened by stitches.

11th. A dose of calomel, followed with ol. ricini was administered, which produced copious evacuations and a quantity of dead lumbrici of large size.

12th. Abdomen tympanitic; frequent pulse, and exquisite tenderness

over the bowels; gave calomel, 5 grs. every four hours, followed by oil in the evening; fomentations to the bowels.

13th. Calomel and oil operated well; more worms; less fever; pulse less frequent; tenderness and tympanitis nearly the same; scrotum enormously swelled, and œdematous; continued calomel in small doses, with occasionally an anodyne of morphia and fomentations.

14th. The tympanitis and tenderness are nearly gone, and the fever trifling. From this time he improved rapidly; the scrotum became so much swollen and œdematous as to require scarifications; the wound was entirely healed in twelve days; the hernia was permanently cured.

Remarks.—The protrusion of the intestines in this case proved a serious accident, as I apprehend it must be always in children and refractory patients. Yet I conceive that it is not often a necessary consequence, as proper care on the part of the surgeon will always prevent such an occurrence. After the stricture is removed, and the patient is quieted, the natural tendency of the intestine is to return into the abdominal cavity, with very little trouble, unless there is a large portion strangulated, and that much distended; but, in this case, after relieving the stricture, I was examining the portion embraced by the stricture, when the struggle commenced, and the rapidity with which the intestines rolled out of the opening, took me by surprise; but, to return them through the small opening, filled as they were with wind, fæces and worms, with the resistance of the patient, and the violent action of the abdominal muscles, was a very difficult affair, and will prove a salutary lesson in future when operating upon children and persons destitute of discretion.

Case II.—John Brown, of Lisle, Broome Co., N.Y., æt. 61, of intemperate habits, but good constitution, had been afflicted with inguinal hernia for forty years. It often became strangulated, but he was always able to return it himself. He states, that about fifteen years ago it became strangulated, and that he was never able to return all the contents of the tumour into the abdomen, and that it gave him little uneasiness unless the bowel came down, which he generally kept up with a truss, which was worn above the tumour, made, as he supposes, by the omentum. April 20, 1844. Symptoms of strangulation came on, and he used the efforts and means which had formerly been successful; these he continued for two or three days without avail, when he sent for Dr. Lewis H. Kelly, of Marathon. Dr. Kelly bled him, and gave a cathartic enema, employed taxis, tobacco injections, cold applications to the tumour, nauseating doses of ipecac. These efforts were persevered in daily for six or seven days. Two or three small stools were procured in this time, but without giving any material relief.

I was sent for on the 29th of April to perform the operation. I saw him on the 30th in company with Drs. Kelly and Knapp. He had rested better through the night than usual in consequence of Dr. Kelly having given him a full dose of opium preparatory to the operation. Found the abdomen much distended, but very little tender; surface bathed in a profuse perspiration; occasional retching, which he had been troubled with several days; pulse calm; 80 per minute; tumour, which was situated high up, extending into the scrotum as large as the double fist; very hard, and exquisitely tender; he referred the commencement of the pain to a small point directly at the opening of the abdominal ring. On a close inspection, there seemed a slight division in the tumour, as if the sac contained two distinct bodies; yet the whole tumour is so tense and tender as to make the diagnosis obscure. After

shaving the hair from the parts, I proceeded to the operation in the usual manner; found the hernial sac very much thickened, and nearly a gill of fluid in the sac, which contained omentum and a small piece of intestine, which had formed adhesions to the sac and omentum; these adhesions were carefully separated, and the intestine, which was somewhat dark, but not disorganized, returned into the abdomen. The omentum was so much thickened, and so extensively adherent, that I thought it best not to separate it. Immediately beneath the incision was still a large tense tumour, the upper boundary was nearly on a level with the external opening of the abdominal ring, while it extended half way to the bottom of the scrotum. It was of an oblong oval shape, of the size of a goose egg. I now suspected encysted hydrocele of the spermatic cord, and made a small opening into it at its lower portion. A quantity of fluid, judged to be half a pint, escaped; some portions of it was clear, of a light straw colour, mixed with gelatinous portions and pieces resembling coagulable lymph. On the evacuation of the fluid he became very faint, and complained of excessive pain in the testicle and spermatic cord. This pain was most excruciating, continued three hours, and was only relieved by large and repeated anodynes. I excised all the front of the sac, which was greatly thickened, with a view to the radical cure of this disease. The wound was brought together by sutures and adhesive plaster, with the T bandage. Dr. Kelly wrote me six months after that the patient had but little constitutional fever after the operation; that his bowels moved freely by the use of castor oil the night after the operation; that the wound healed in the usual time; there has been no descent of the intestine since; that the hydrocele of the cord was permanently cured; there is only a very small tumour of the adherent omentum, and that the patient's health is better than for years preceding the operation.

Remarks.—The length of time which this hernia had been in a state of strangulation,—the age of the patient, and his intemperate habits, rendered the diagnosis unfavourable. There is a great difference in cases as to the length of time that strangulation will run into a state of inflammation and gangrene, depending often on the age, constitution, and habits of the patient, and often, no doubt, on the circumstances of the stricture in each individual case, and on the treatment which is adopted at the time.

While some cases run on to gangrene, and a fatal termination in twenty-four or forty-eight hours, others, again, will survive eight or ten days, and, in one instance which fell under my observation, the woman lived twenty-one days after strangulation. The operation for strangulated hernia is not one of much danger; and the fatal cases are generally those where an operation has been delayed until inflammation has set in, and the parts nearly in a state of gangrene. Of all the remedies for the renovation of strangulated hernia which I have used, full doses of opium have proved the most successful. These, to be efficient, should be preceded by bleeding to faintness, and the doses of opium should be such as to produce some degree of *narcotism*. In this way I have very generally succeeded in accomplishing reduction, and often the hernia will spontaneously return when all the usual remedies have been faithfully put in practice, and the operation deemed the only course. The tobacco injection I have little confidence in, and it may do much mischief. In one instance I have known opium produce death in a very few minutes, but the quantity administered was inordinate. It calms the system wonderfully, and disarms the case of that terror and anxiety which a patient feels when strangulation has taken place. The abdominal muscles, instead of feeling tense, relax, and the patient makes no resistance by bracing

his muscles, and straining them to their utmost tension. Besides, if you fail to accomplish reduction, he is in an admirable state for the operation, both physically and mentally.

The complication of this case with hydrocele of the spermatic cord, I presume, is somewhat rare—it rendered the diagnosis somewhat difficult. The hernia had been one of a great many years standing, and it is probable the hydrocele had been likewise. The omentum from the old adhesion had been in the sac a great many years, partially covering the tumour; and he informed me, after the operation, that he had made many and repeated efforts to return it into the abdomen. After he had returned the intestines he was obliged to wear his truss above the tumour, which gave him, at times, great pain, and there was a raw spot where the pad of the truss rested.

I have known hydrocele of the cord mistaken for strangulated hernia, and the operation performed; and I can conceive a case which it might require great discrimination and tact to distinguish. I have known psoas abscess to be mistaken for crural hernia, and have had patients come to me with a truss on such swelling. When the abscess first appears beneath the crural arch, the appearance and symptoms may lead to such mistake; but this mistake is harmless compared with mistaking hernia for abscess, and plunging a lancet into the tumour, when the escape of wind and fæces announce, to the astonished surgeon his error in diagnosis. Such an occurrence actually occurred in this state not many years since. The patient died, of course, from extravasation of fæces into the cavity of the abdomen and inflammation. It is not an unfrequent occurrence to be consulted by a patient with a truss on, who, on examination, is found labouring under varicocele. The mistake, of itself rather harmless, as the patient, finding his symptoms a little aggravated, applies again to his surgeon, who finds the truss does not keep the tumour in the abdomen, removes it, ascertains the true character of the difficulty, and either operates for the varicocele or leaves off the truss. Hydrocele is sometimes mistaken for hernia. An instance fell under my care not long since where a man came to me to get a certificate to exempt him from military duty. He stated to me that he had a hernia, and showed me several certificates to that effect from surgeons who had examined him annually for four years. I found him with hydrocele of the tunica vaginalis, and cured him soon after by an operation.

Cortlandville, N. Y., Nov., 1844.

REVIEWS.

ART. X.—*Théorie Positive de la Fécondation des Mammifères, Basée sur l'Observation de toute la série animale.* Par F. A. POUCHET, D. M., Prof. de Zoologie au Muséum d'Histoire Naturelle de Rouen, &c. Paris, 1842, pp. 161.

Positive Theory of the Fecundation of the Mammiferæ. By F. A. POUCHET, M. D., Paris, 1842.

De la Puberté et de l'Age critique chez la femme, au point de vue Physiologique, Hygiènique et Médical. et de la Ponte Periodique chez la femme et les Mammifères, Par M. A. RACIBORSKI, Docteur en Médecine, &c., Paris, 1844, pp. 520.

Of Puberty and the Critical Age in Women, and of the Periodical Discharge of Ova by Women and the Mammiferæ. By M. A. RACIBORSKI, M. D., &c., Paris, 1844.

Beweis der von der Begattung Unabhängigen periodischen Reifung und Loslösung der Eier der Säugethiere und des Menschen als der ersten Bedingung ihrer Fortpflanzung. Von TH. L. W. BISCHOFF, Doctor der Medicin und Philosophie, ordentlichem Professor der Medicin und Director des Physiologischen Institutes zur Giessen, &c. Giessen, 1844, pp. 54.

Proof of the Periodical Ripening and Separation of the Ova of Mammalia and Man, independent of Cöitus, being the first condition of their Propagation. By TH. L. W. BISCHOFF, M. D., P. D., &c. Giessen, 1844.

THE patience and industry with which the comparative anatomist, aided by the microscope, has pursued the study of the intricate phenomena of animal life, through every stage and form of existence and in the most minute structures, have been richly rewarded by the attainment of results as important, as in many instances they were unexpected. In no branch of physiology is this remark more true than in that which relates to generation; a subject of surpassing interest, and, within a very recent period only, shrouded in the darkest mystery and uncertainty. It is true, that much entirely impenetrable by our present means of investigation remains still to be learned, but yet many steps in advance have been made, which may encourage to farther labour and investigation. The discovery, that the Graafian vesicle, instead of being a glandular body, destined to secrete a seminal fluid, actually contained an ovum, differing in the mammalia in no essential respect from those of the inferior orders of animated beings, was of the utmost moment, by removing one of those distinctions which it was supposed existed between these orders. Still it was alleged, that sexual intercourse was requisite to cause the formation of the Graafian vesicle. Investigation proved that they were found in virgins and even in infants. It was next asserted, that if sexual intercourse was not requisite to their formation, it was absolutely essential to the maturation and separation of the ova; driven again from this position, by the fact that in

virgins, *corpora lutea*, which are the remains of ruptured vesicles, have been found, as a last resort, the physiologist was compelled either to call to his aid the influence of a high state of sexual excitement, or to deny that true *corpora lutea* were formed in virgins, pointing out, at the same time, the means by which the true might be distinguished from the false.

The labours of distinguished men have, at length, solved all these difficulties, by showing conclusively, that at the period of heat in the mammalia generally, and at each menstrual period in woman, an ovum, which has been gradually developing itself in a Graafian vesicle of the ovary, becomes mature, bursts from the vesicle and passes into the oviduct or Fallopian tube, whether sexual intercourse takes place or not, (indeed, that this whole phenomenon is entirely independent of cöitus,) and that after having passed into the oviduct, it may be impregnated if connection takes place and the seminal fluid reaches it, or it may be lost.

But we are anticipating our subject, and must proceed to direct attention to the works above-named, which are devoted to the relation of the experiments and conclusions of the authors on the subject of generation. As, however, the work of M. Raciborski embraces a wider range, taking up the subject of menstruation in a hygienic and medical point of view also, it shall first be presented to the reader, the discussion of the theory of the spontaneous periodical discharge of ova being deferred, though its truth must be assumed, until it regularly comes up in the course of this work, when it shall be considered in connection with the same doctrine as developed in the works of M. Pouchet, and of M. Bischoff, which are more exclusively occupied with the proofs of its truth.

An abstract of some of the conclusions to which M. Raciborski had been conducted, respecting the causes which influence the period of puberty, with one of the valuable tables upon which these conclusions were based, was laid before the readers of this Journal, in the April No. of 1844,* having been extracted from the valuable anatomical report of Mr. Paget. A brief recapitulation of these will suffice for our purpose and will serve as an introduction to much other matter relative to menstruation, which we would willingly give *in extenso*, so well is it brought together.

It is found, from extensive observation, that in Europe, (and probably elsewhere,) the period of puberty bears an inverse ratio to the degree of latitude, having a tendency to manifest itself later, in proportion as we proceed from the equator or as the latitude is higher; the difference being about one month for each degree. Unless, however, the mean temperature of the year corresponds with that which is general in a particular latitude, it will be found to occasion a difference in the period at which puberty is attained, this being later the colder the region is. The sober, frugal, regular habits of country life, are, as might be supposed, more unfavourable to early maturity than the artificial habits, the excitements and indulgences of the city, which are highly calculated to stimulate the nervous system and advance the period of womanhood. Misery, privation and disease, the latter, either the result of constitutional disposition, or of hardship and misfortune, exert a retarding influence upon the development of the generative organs, while the comforts and luxuries of wealth and the inestimable blessing of a strong and vigorous constitution

* Summary, p. 439.

unquestionably promote and, as it were, stimulate the ripening of the ova, which is but another term to express procreative maturity.

Nor are the effects of race upon the period of puberty less positive, though its influence may be much modified by long-continued residence in a different climate. Thus, from facts furnished to M. Raciborski, by M. Lebrun, physician-in-chief of one of the Warsaw hospitals, it is clearly demonstrated, that although among the Jewish women,—of which nation great numbers inhabit Poland, having preserved themselves very pure in their race and still maintaining strictly most of the laws and customs of their ancestors—maturity occurs later than in a more southern climate, yet the difference between them and the women of the Sclavonian race, has not, even after many centuries, been entirely effaced; for while among the Sclaves only one woman in one hundred is observed to menstruate before the age of thirteen, there are already twelve among the Jewesses.

Cases of extraordinarily precocious or retarded menstruation, the illustrations being chiefly drawn from M. Dezeimeris' excellent paper on the former, are next considered, their cause being shown to consist in the very premature or delayed maturation of the Graafian vesicles. An instance of what would probably have been a case of premature maturity, is given by M. Raciborski; on dissecting the ovary of a seven-months' fœtus, in which M. Mayor, Interne of the Hôpital des Enfants Malades, perfectly ascertained the presence of the pupillary membrane, a Graafian vesicle was found in it perfectly formed; so that if the child had been born at full time, she would probably have presented several Graafian vesicles perfectly formed, and would have exhibited, soon afterwards, evidences of menstruation; "menstrual hæmorrhage being only the rigorous consequence of the anatomical and physiological peculiarity," p. 86. The revolution of the economy which is observed at the age of puberty, is, as is well known, a very marked one even to the most superficial observer. M. Raciborski considers, that "the most unequivocal sign of procreative maturity, nay, even more certain than the menstrual evacuation itself, which, from its resemblance to other hæmorrhages, may sometimes lead to error, is the development of the mammary glands, of the pelvis and of the external sexual organs," (p. 97,) especially the covering of the pubes with hair, for it is well ascertained, he says, that when these changes occur, the Graafian vesicles have arrived at a degree of development, at which "they only await the command to burst and cause the first laying, (*ponte*,) which almost always coincides with the first eruption of the menses;" though such a *ponte* may and probably does occur, he says, before any hæmorrhage is observed, where girls experience periodically for several months before their menses appear, colics and pains in the abdomen and loins, &c., p. 98.

In a note to his description of the ovaries, contained in this chapter, M. R. says, that, to dissect an ovary properly, it should be steeped in alcohol or boiling water, to harden the albuminous liquid in the vesicles. This done, three incisions should be made through it, parallel to its long diameter, one along the median line, and one on each side; the two lateral incisions being close to the external envelop, present a large number of round depressions, filled, most of them, with a cheesy matter, white, or sometimes a little red—if a little blood is mixed with the albumen—of different sizes, rather more numerous on the anterior than the posterior surface of the

ovary, which are, in fact, the Graafian follicles divided; whereas, upon the median incision, that which is usually alone made, but few will be found, and chiefly on the upper edge. By this mode of proceeding, some thirty or forty follicles will be discovered in each ovary of a young woman, at the period of puberty; these follicles being disseminated around the proper substance of the ovary, which forms a central nucleus.—pp. 95–7.

As to marriage in a medical and social point of view, which is next treated of, the only proper inquiry for the philanthropist and the physician is, at what age may a woman contract marriage so that she may be fitted to bear healthy and vigorous children, and be competent to discharge her duties as a mother; for, as Burdach says, "true maturity, which is designated by the term *nubility*, differs from puberty." Respecting this, our author's opinion may be thus summed up. Women who marry very young are often sterile, or liable to abortion, or bear miserable and unhealthy children; the mortality among these last being greater than among the children of women who have married later in life. From all the facts brought forward, he concludes, that it is after the age of twenty years that women, in the climate of France, (to which his remarks especially refer,) appear most apt for reproduction, and give birth to children which have most vigour, and the best chances of life. Hence the period between twenty and twenty-four years may be selected as in general that which is most advantageous for marriage, whether we consider the mother or the child, though the disadvantages of later marriage have been much exaggerated.—p. 125.

Too frequent pregnancy is an evil which has a tendency to enfeeble the woman's constitution, and hence it is desirable by all *proper* means to prevent it. None is more natural or favourable than lactation. The reports of Mr. Robertson and Mr. Laycock,* however, show that even this has been overrated, though the "generative faculty" is certainly less energetic during lactation than at other times. Another method, which is a deduction from the theory upon which the present doctrines are based, is according to the author, "to introduce a certain regulation in sexual connections." Common experience has already pretty well settled the belief that it is most generally soon after the period of menstruation that women are impregnated. Nægele, as reported by Bischoff, says that he has as yet never (*noch nie*) found the calculation of nine months and eight days from the last menstruation, in normal cases, to fail in calculating the term of pregnancy.—p. 43. Raciborski says that not more than six or seven women in one hundred become pregnant at periods remote from menstruation, p. 132, and in this he is supported by many other observers, who, with him, state that, with exceptions, impregnation is the result of unions which have taken place at the moment of, or immediately before, or a few days after the menstrual period; the last period, Bischoff thinks, may extend to from eight to twelve days, during which the ovum is passing along the Fallopian tube, the period in the rabbit being three days, in ruminating animals four or five, and, in dogs, eight or ten days.—p. 44. The conclusion which M. Raciborski draws is as follows: "By abstaining from sexual connections for from two or three days before the period at which the menses should occur until the eighth day after the menstrual evacua-

* Am. Journ. Med. Sci., p. 184, Jan., 1843. Quoted from Dub. Med. Press, Oct. 16, 1842.

tion, the chances of reproduction may certainly be considerably diminished."—p. 134. M. Pouchet says, "as it is more than sufficiently proved that in the mammiferæ it is at the epoch of sexual excitation that the ovules are expelled, and that at other times fecundation is impossible, it becomes equally evident, that, as the menstrual discharge in women represents this excitation, it is only in the neighbourhood of that period that our species possess the faculty of reproduction."—p. 97. An opinion in which he is fully sustained by M. Bischoff.

Can a girl who has never yet menstruated contract marriage with the hope of having children? This M. R. answers by saying, that, if there are physical defects, such as absence of the ovaries—which may be judged of by the external physical appearances indicative of puberty, after a woman has passed the usual period of maturity—or absence of the uterus, she, of course, cannot. But when no such defects exist, and the other evidences of puberty are complete, we should not hesitate to permit marriage; for, on the one hand, the hæmorrhage is not an essential phenomenon of puberty; and, on the other, it may only be retarded, and marriage may develop the latent energy of the sexual organs.

The hygiene of young girls, at the approach of puberty, merits peculiar attention, in view of the important duties they may soon be called upon to assume. By an attention to her diet, which should be nutritious and digestible, and which should be varied according to the constitution, and to proper methods of dressing, from which the corset should be utterly proscribed, by well-directed out-of-door exercise, such as gymnastics, walking, swimming and equitation, she will best promote a vigour and activity of system eminently qualified to favour the development of the organs which are soon to exercise so important a control over her future existence. Nor should the training of the intellectual faculties be overlooked. The author here, as in the consideration of diet, places himself stoutly in opposition to the system of making all fare alike, whether in their food or their studies, as is too generally the case in boarding-schools, where neither the capacities, tastes, nor constitutions are consulted, but where every girl must pursue the same studies, and under the same circumstances, with their companions, however little she may be qualified for so doing either by health or intellectual powers. M. Raciborski, following the lead of many gifted writers on female education, says, "These considerations especially, with others before alluded to, make us prefer for young girls a private education, under the direction of an intelligent and well-instructed mother, to public education, or that of boarding-school.***Besides, no other education (than that under a mother's guidance) can spread out so skilfully, before the eye of a young person, the seductive pictures of the world," and warn her of the sad realities they conceal.

Many interesting questions connected with the physical and intellectual education of girls, are touched upon in this chapter; but we are forced, full of instruction as they are, to pass on from them to the subject of the medical care and therapeutical indications in respect to young girls at the approach of puberty. Under no circumstances should we seek to provoke the menses in girls, who are in the enjoyment of good health, even though they may have passed the mean age at which these usually appear; and for the very best reason, because all our efforts would be fruitless, as nature has not provided for their appearance. The power of ill health and sickness to retard the occurrence of puberty, being satisfactorily esta-

blished, we should seek to relieve any disease which may exist at the approach of that period, as the means employed for that purpose would probably act as the best emmenagogue. In one case only would it be proper to seek to favour the menstrual discharge in young girls indisposed at the age of maturity; and that is, when there is every reason to believe, from the present phenomena, that the Graafian vesicles are mature, but where the congestion of the genital organs, which then takes place, cannot relieve itself by the hæmorrhage.—(p. 218.) To diminish this general or local plethora, which is one of the causes of this condition, and to give a direction of the blood towards the external genital organs, general bleeding and the application of leeches to the inner part of the thighs or vulva, with warm foot-baths, enemata, cooling regimen, &c., are advisable. The same means may be pursued to a great extent, where the retardation is consequent upon extreme excitement of the utero-ovarian nervous system. In these cases, which are attended with dragging pains in the groins and loins, and by engorgement and swelling of the uterus, the author recommends, with many previous writers, the use of ergot.

Different affections may retard or interfere with the development of the Graafian vesicles, and thus prevent menstruation. Among these are what are called serious diseases, as fevers, &c., chlorosis and the scrofulous cachexia. The effect of the first must be counteracted by proper hygienic rules.

Chlorosis, characterized by the pallid colour of the skin, due to the extreme paleness and liquidity of the blood, (which has been shown by the admirable labours of MM. Andral and Gavarret, to be caused "by an actual atrophy of the blood, that is to say, by a more or less considerable diminution in the proportion of its globules, * * * the colouring matter which enters into their composition, being, of course, diminished in the same proportion," p. 242,) is a very common affection among girls at the approach of puberty, and "if, in such cases, they do not menstruate, it is because they are chlorotic; the chlorosis is never the effect, but the cause of the menstrual derangements."—p. 246. Hence the condition of the sexual organs in chlorosis, says M. R., affords no important indication; the treatment should be directed to put an end to the state of things which has given rise to this imperfect hæmatosis, and thus to bring about the establishment of the menstruation. A wisely directed hygienic treatment, such as the enjoyment of pure air, the use of a healthy tonic regimen, bathing, exercise, &c., and especially the preparations of iron, which are, in many cases, entirely indispensable, in all, advantageous, will generally correct this statement of deficient hæmatosis. It being very important, in the selection of a preparation of iron, to choose that which, by experience, is proved to be best adapted to the relief of this affection, M. R., by the assistance of M. Quevenne, Pharmacien-en-chef de La Charité, has entered very fully into a discussion of the properties of those now known in pharmacy. They are included under the following classification.

1st Division.	Substances not saline.	Metallic.	
		Protoxidised.	
		Peroxidised.	
2d Division.	Saline compounds.	Protoxidised	with a mineral acid.
			with a vegetable acid.
		Peroxidised	with a mineral acid.
			with a vegetable acid.

Without enumerating the different preparations thus classed, it will be sufficient here to mention, that those of the first division, insoluble in themselves, are rendered active only by meeting with an acid in the stomach; hence, those are most valuable which are most easily attacked by the weak acids; and, among these, none presents more advantages than metallic iron, prepared by passing over one of the oxides of iron, exposed in a tube at a red heat, a stream of hydrogen gas, which abstracts the oxygen, forming water with it, and leaves the iron in a state of extremely minute division. MM. Quevenne and Miquelard, by whom this was introduced, consider it as combining the two qualities most desirable in ferruginous preparations, *very great activity* and *absolute insipidity*.

The protoxidised compounds being regarded as having a more tonic and less astringent mode of action than the peroxidised, are, consequently—according to the views of M. Gélis, that the good effects of iron in chlorosis are due to a special action on the digestive organs and nervous system, by which the formation of globules in greater numbers is favoured—the most advantageous chalybeates in this form of disease. Among these the proto-carbonate, which is the basis of the pills of M. Vallet, and which, by the way, is the form in which iron is found in chalybeate waters, and the lactate are considered to be the best. Where a scrofulous tendency is at the same time observed, or when it exists alone, and is the cause of retarded menstruation, as it is well known to be when present, the protiodide of iron is unquestionably the best form.

We must pass by the author's remarks upon onanism and deformities arising from curvatures of the spine, and the very interesting and instructive chapter on the mechanical obstacles to the first appearance of the menses, to take up the consideration of the critical age in women. In addition to the usual causes which are observed to influence the duration of the menstrual period, M. Raciborski asserts, as the result of his investigations, that "it is in direct proportion with the number of labours, and that the more children a woman has had, the greater is the tendency of the menstrual period to prolong itself; * * * showing distinctly that pregnancy brings no derangement in the regular march of menstruation."—p. 327. Another proposition, to the same effect, is thus expressed: "If we abstract exceptional cases, we may establish the position, that the more precocious a woman is in the first menstruation, the greater disposition has she to have many children; and that, at the same time, the cessation of the menstrual function or *ménopause* will occur in her case at a more advanced age, and that, in consequence of the high degree of vital power, devolves upon the reproductive faculty."—p. 330. The *ménopause* presents two phenomena for our consideration; one, the cessation of the *ponte* and of the faculty of reproduction, the other functions increasing in energy, from which results, among other things, an increase of the fatty tissue; and the second phenomenon, a sanguine plethora, which is not relieved by the usual periodical discharge, and which may result, as is too well known, in serious consequences, unless wisely directed hygienic rules are observed. These points are carefully considered and developed in a very instructive chapter.

We have thus passed cursorily over the first part of M. Raciborski's work, which will be found, on examination, to be full of instruction and interest, though necessarily turning upon matters long since carefully investigated, and consequently presenting but little space for originality of

views. Still, it is not entirely devoid of this source of interest, as will be evident from the analysis already made.

We are thus brought to the consideration of the facts upon which this new doctrine of generation is based; a doctrine which, by a coincidence not rare in the annals of science, is promulgated almost at the same moment by a number of distinguished men, whose occupations and pursuits have brought them by different trains of reasoning to the discovery, probably, in several instances, without a knowledge of each other's labours. It is true that the important truth had been foreshadowed, and even indistinctly perceived by recent investigators, as MM. Négrier, Paterson, R. Lee, Jones, &c., who were, however, too much wedded to old opinions to yield themselves immediately to the new light which was breaking in upon them; and it remained for M. Pouchet, the Professor of Zoology at the Museum of Natural History of Rouen, to give the first distinct and positive enunciation of the doctrine. In his work, whose title is given above, published in 1842, a work stamped with the impress of profound thought, clear perception, and thorough knowledge of the subject on which he was writing, M. Pouchet has developed, having taught it to his class since 1835, "the positive theory of the fecundation of the mammiferæ," with all the enthusiasm and energy of conviction. He has even anticipated and answered almost every objection; and, although some few errors may be discovered, they must be attributed rather to the fact that his conclusions are based upon a learned scrutiny of the records of science than upon actual experiments of his own relative to this point.

His conclusions are thus summed up in ten fundamental and three accessory physiological laws, the latter of which, though he considers them proved, may admit of argument. In a subsequent portion of our notice the general accuracy of these will be shown, and some of their probable fallacies pointed out.

"1st Fundamental physiological law.—The human species forms no exception; the phenomena of its generation follow laws analogous to those which are observed among the different animals, and they are even perfectly identical with the acts which take place among those which occupy the head of the zoological series.

"2d law.—Generation in all animals takes place by means of eggs, some inferior beings alone forming an exception.

"3d law.—In the whole animal series the ovules pre-exist fecundation.

"4th law.—Physical obstacles prevent, in the mammiferæ, the possibility of the seminal fluid being placed in contact with the ovules while yet contained within the Graafian vesicles.

"5th law.—In the whole animal series, without the possibility of question, the ovary emits its ovules independently of fecundation.

"6th law.—In all the animals the ovules are emitted at periods fixed, and in relation with the increased periodical excitement of the genital organs.

"7th law.—In the mammiferæ fecundation never occurs unless the emission of the ovules coincides with the presence of the seminal fluid.

"8th law.—The emission of the catamenial discharge of women corresponds with the phenomena of excitement which manifest themselves at the period of the *amours* of the different beings of the zoological series, and especially of the females of the mammiferæ.

"9th law.—Fecundation offers a constant relation with the emission of

the menses; thus, in the human species, it is easy to determine accurately the intermenstrual period at which conception is physically impossible, and that at which it may be probable.

"10th law.—Assuredly there exist no ovarian pregnancies, properly so called.

"1st Accessory Physiological law.—Fecundation in the mammiferæ is normally effected in the uterus.

"2d law.—Abdominal and tubar pregnancies do not indicate that fecundation is effected normally *in* the ovary, and that it is this which causes the emission of the ovules.

"3d law.—Normally, the Fallopian tubes only contract from within outwards to transport the ovules."—p. 11, 12.

Important as was the work thus performed, it was requisite, before full credence could be reposed in this new doctrine, that it should be sustained and established by direct experiment; this task MM. Raciborski and Bischoff both claim, each for himself, to have performed, the former, it is true, with a full knowledge of the writings of M. Pouchet, the latter, as is evident from his work, without any such aid to stimulate him in the prosecution of his undertaking. M. Duvernoy, also, asserts his claims to have discovered this relation between the Graafian vesicle and menstruation, and he unquestionably did, in the autumn of 1842, develop this theory briefly before the Scientific Congress, which assembled at Strasburg that year, founding his opinions on analogical proofs.

M. Raciborski, on the 10th and 17th of July, 1843, read to the Academy of Sciences, of Paris, a series of papers on Menstruation, and the Periodical Discharge of Ova, in which he completely establishes this new doctrine, having, in the December previous, announced his intention of so doing at the earliest opportunity; these papers, full of interest and instruction, we shall have occasion frequently to notice. On the same 17th of July, M. Breschet communicated to the Academy of Sciences a letter from M. Bischoff, of Heidelberg, now of Giessen, dated the 29th of June, in which he revealed the important discovery, he at that time supposed original with himself. His labours, relative to the development of the mammiferæ and man have been some two years before the profession, and in the prosecution of his inquiries, with a view of ascertaining more exactly than had before been done, the precise period of the passage of the ova from the ovaria of dogs and rabbits, (he then supposing it to be dependent on cöitus, and to occur either during or some time after this act,) he was conducted to the knowledge of their maturing and separating from the ovaria, entirely independently of the influence of the male. Without delay he reported the fact, through M. Breschet, as well as his belief that the same law applied to women also, and that this phenomenon was coincident with the period of heat in animals and menstruation in women, both of which were caused by the congestion which always appeared at the moment of the full maturity of the ova; he also expressed his hopes that future observations would enable him to develop his propositions more fully.

In support of their respective claims, the works whose titles have been placed at the head of this notice have since appeared. Without pretending to decide positively respecting them, we cannot but think that the labours of M. Bischoff are best entitled to the merit of having experimentally proved the new doctrine, which he appears to us to have done in the

most unquestionable manner. M. Raciborski, however, goes farther into the matter, not confining himself to the mere determination of the law, but examining and illustrating some of its most important bearings, and applying it more strictly to women, upon whom his own observations appear to have been chiefly made.

In the remarks which are to follow we will take as our guide the truly experimental work of M. Bischoff. We have already observed that it was long supposed that the laws of generation in the mammalia and man differed essentially from those which were known to govern the other classes of animals. Though it was well ascertained that in these last the development, maturation and separation of the ova occur independently of the male, the contact of the male semen, however, being necessary for their final development—in the first it was supposed that the congress of the sexes was essential to give origin to the product which the female contributed for the future being. Recent discoveries, by disclosing the existence in the mammalia of ova, which, from their minuteness, had escaped detection by earlier observers, dissipated in part the supposed distinction, although the belief still remained that, notwithstanding the demonstrated existence of *corpora lutea* in the ovaries of virgins, the act of cöitus was requisite for the maturation and separation of the ova. The contact of the male semen was essential to fit them to be discharged.

Fully impressed with the idea that the exit of the ova from the ovaria was the consequence of cöitus, or occurred during or soon after that act, M. Bischoff instituted a series of experiments for the purpose of ascertaining at what precise period the separation took place. He established, indeed, satisfactorily to himself, though M. Pouchet denies the possibility of such an occurrence normally, that in the dog, the semen penetrates in from twenty to twenty-four hours, and, in the rabbit, in from nine to ten hours, from the uterus, into which it is ejaculated during cöitus, through the oviduct to the ovaries. But he was, at the same time, convinced of his error in supposing that the separation of the ova was determined by copulation, though calculations, founded upon the above results, were approximatively accurate in determining the period of separation; for, as a general rule, none of these animals will allow themselves to be covered until the moment of separation has arrived, although the symptoms of heat may have continued for several days.

The following fact was among those which first opened his eyes. He took a young, stout, healthy bitch, which had never been pregnant, and carefully watched her. About the beginning of June, 1843, symptoms of heat were apparent, the dogs following her, and there being a bloody discharge from the vagina. She would not receive a dog, however, until the 11th of June, when she was lined, and immediately afterwards M. B. removed, from the living animal, the left horn of the uterus, with the oviduct and ovary of the same side. Upon an examination, with the microscope, which was immediately made, living and moving spermatozoa were found in the upper extremity of this horn, though none could be found in the oviduct: but, to his astonishment, he discovered that five Graafian vesicles in the ovary had already burst, and *corpora lutea* were already distinctly formed; upon further examination, the five ova were found in the oviduct, having already advanced *two* inches, and resembling exactly *ovary-eggs*. The next morning, about twenty hours after copulation, at

which time previous experiments had taught him the semen might reach the ovary, the bitch was killed; and, although spermatozoa were observed still alive in the right horn, they had merely penetrated into the end of the oviduct, about two and a half lines. Five ova were observed at about the middle of this canal, and several lines apart, resembling, generally, those found on the left side, but not as yet surrounded by spermatozoa; while, on the ovary corresponding, there were five fresh *corpora lutea* more advanced than on the other side, but still presenting the central opening.

This experiment evidently proved that the separation of the ova had occurred previously to the copulation, for, as M. Bischoff remarks, copulation is now known never to have this effect, as he has found since, after several complete copulations of other bitches, that the Graafian vesicles were still entire, and besides, it is altogether improbable, that in a quarter of an hour, the ova could have advanced two inches in the oviduct, when they ordinarily require eight days to pass through its whole length of from two to three inches.

By a repetition of the experiments of Nuck, Haighton, Cruikshank, Grassmayer, Blundell, &c., which consisted in interrupting, by ligature or otherwise, the communication between the uterus and ovaries through the oviduct—experiments which, in their hands, were productive only of negative results, showing that fecundation was impossible under such circumstances, although *corpora lutea* were formed—M. Bischoff shows, that though the advance of the male semen through the oviduct to the ova is prevented, the Graafian vesicles still swell and burst, *corpora lutea* are formed, the ova pass out, arrive in the oviduct, and, not being vivified, shrink and perish, and that "hence, notwithstanding the intervention of copulation, the independent course of the development of the ova is proved."—p. 18.

The following observation shows decisively the independent maturation and separation of the Graafian vesicles and ova:

At 4 P. M., on the 7th December, 1843, M. Bischoff received a lamb, which for an hour past had manifested evidences of heat, but had not been mounted. He immediately shut her up, and next morning admitted to her a ram, which made several unsuccessful attempts to mount. As, according to Kuhlemann, sheep continue only twenty-four hours in heat; as Kuhlemann and Hausmann state that they have seen the Graafian vesicles opened twelve hours after copulation, and Von Baer, that he has seen the ovum of a sheep in the oviduct before the end of the first day, M. Bischoff concluded that the ovum had already left the ovary within the first twenty-four hours of heat, and had the animal killed between three and four P. M. In the right ovary, a Graafian vesicle was burst, and though its surface was not above that of the ovary, it was marked by a beautiful, bright-red circle of vessels around a small opening, an appearance perfectly familiar to M. B. in dogs and rabbits. Next morning he examined for the ovum, and, after very careful search, aided by a microscope and a fine needle, at length discovered the little ovule, having the appearance of an *ovary-egg*, under one of the little folds of the oviduct, at the distance of five lines from the entrance into the oviduct.—p. 24, *et seq.*

This observation proves most conclusively the maturation and separation of the ovum in a young virgin animal, consequently entirely independent of copulation. We may here remark, *en passant*, that M. Bischoff, in some very interesting microscopical observations upon the ovum, states,

that though the yolk had what appeared at first sight a peculiar membrane, in consequence of a very sharp outline, which, in a certain position under the microscope, presented a dark line such as a membrane might give, he is, nevertheless, convinced that it was a deceptive appearance, and that, with the exception of the zona, the yolk has no distinct membrane, but is rather a gelatinous or albuminous sphere in which the yolk-granules are suspended and distributed, (pp. 27, 28.) A similar observation is made in reference to the ovum of a sow, noticed on p. 35, where the contour of the yolk was so sharp, that in certain positions under the microscope it resembled a membrane. M. Bischoff, it will thus be seen, denies the existence of a peculiar membrane covering the yolk in the ova, in oppotion to the assertions that such a membrane is to be met with.

One more striking observation we will briefly record, which, by a double experiment upon the same animal, proves as satisfactorily as possible, the ripening and separation of ova during heat and without the aid of the congress of the sexes.

On the 18–19th December, 1843, M. Bischoff observed a large bitch to be in heat, though she would not allow a dog to mount her until the 21st. M. B. prevented the copulation, however, and on the 23d cut out her left ovary and oviduct; four Graafian vesicles were observed much swollen, but unbroken. They all contained an ovum, one of them two ova, which did not, however, appear fully ripe for exit, for not only were the Graafian vesicles not very thin, but the cells of the disc were not yet drawn out into filaments, which condition betokens the full maturity of the ova. M. B. observed here very carefully, in several Graafian vesicles, the mode and circumstances in which the ovum is situated in them. The cells of the disc form a small cup, whose concave surface receives the ovum, with which it floats free in the fluid which fills the cavity of the Graafian vesicle, while its base is fixed upon some part of the walls of the vesicle, probably exactly where this opens. Five days afterwards, upon killing the bitch, and upon the very first glance at the remaining ovary, M. B. observed that four vesicles had opened, there being four *corpora lutea* very distinct,—in two of them the mass of granulations constituting them forming a hernia through the opening of the vesicle. Upon carefully examining the oviduct, the four ova were observed close together, about three centimetres from the *ostium abdominale*, (the oviduct being thirteen centimetres long,) three of them being of their usual rounded form, one rather flattened and elliptic. We are compelled to pass over the very interesting microscopic observations which accompany this and all his other cases, but which add materially to the value of them. They would lead into too much detail, and are not essential to the establishment of the positions which form the chief object of the work. Thus far the author has proved, by a variety of examples—of which we have given but two or three—taken from dogs, rabbits, swine, and even a rat, that during heat, and without the congress of the sexes, the ova make their exit from the ovaries of mammalia and pass into the oviduct, but here perish. *Corpora lutea*, however, are formed in the ovaries, differing in no respect from those which are observed when copulation and fecundation have taken place.—p. 38.

Indeed, he lays down the following law, which, it will be seen, brings the generation of the mammalia under the same general rule which obtains in that of all other classes of animals.

"Both in mammalia and man, also, the self-forming ova in the ova-

ries of the female experience a periodical ripening, entirely independent of the influence of the male semen. At this period, which, in animals, is called heat, and in women, usually, menstruation, these matured ova separate themselves from the ovary and are pushed out. At this time, alone in animals, and especially in women, are sexual desires also manifested. If cöitus takes place, the fructification of the ovum follows, in consequence of the material action of the male semen upon it. If cöitus does not take place, the ovum does not the less separate from the ovary, pass into the oviduct, but there perishes. The relations of time, however, as it appears, may vary in different animals within different yet fixed limits. The semen may have sufficient time to reach the ovary before the ovum has separated. The ovum may also have already passed out, and the semen have first encountered it in the oviduct; the action of the semen upon the ovum must still, however, always take place, if the ovum is to be developed, which development is commenced while it is still in the oviduct. But at this period of the periodical ripening of the ova, alone, can cöitus be followed by fecundation."—pp. 4, 5.

It is necessary, still, to prove the applicability of this law to woman, and to show that menstruation actually corresponds with the period of the maturation of the ova in their ovaries. Without resorting to the facts furnished by M. Négrier, (who, by the way, was the first to give an accurate account of some of the true anatomical characteristics of the discharge of ova by women, with a description of the successive evolutions of the Graafian vesicles, from the moment of their formation until the ova separate from the ovary,) M. Gendrin, Robert Lee, Paterson, T. Wharton Jones, &c., which are, in themselves, conclusive, we will merely adduce the proof afforded by the authors whose works we are considering.

M. Pouchet, after accumulating a great number of proofs of the existence of a periodical menstrual discharge among animals, or, at any rate, when this is not observed, of a periodical afflux of blood into the genital organs, which is essentially connected with the rutting season, now known to correspond with the maturation of a Graafian vesicle, contends that the same phenomena in women must be due to the same causes, or that menstruation in them must correspond with the period of maturation of an ovum.

M. Raciborski, in addition to this mode of reasoning, describes the actual progressive development (pp. 53, 54, 92, 419) of the Graafian vesicles in the ovaries of women, as he has done also of those in the sow, in proportion as we approach the age of puberty. "In proportion as the ova ripen," he says, "the follicles which enclose them increase in size. Ten or twelve days before the *ponte*, they already become prominent above the surface of the ovary, sometimes in a nipple form, sometimes as a broad protuberance, having still semi-transparent parietes, and enclosing a yellowish-white viscid liquid, rich in granulations, visible by means of a microscope, and coagulating by means of alcohol, boiling water and nitric acid. At this period, if the body is opened shortly after death, the ovule may be quite easily distinguished in the midst of the granulations. The whole ovary becomes the seat of a strong congestion, and augments sensibly in volume."—p. 421.

"In proportion as the Graafian vesicles are developed, and the moment of *ponte* approaches, the parietes of the vesicle, although more and more distended, begin to appear less diaphanous, in consequence of the thickening of the internal membrane and of the hæmorrhage which occurs at the

last moments in the interior of the vesicle. Finally, the point becomes evident at which the opening is to take place, at the most prominent part of the tumour. This point generally presents the aspect of a reddish spot some lines in extent, caused by a strong injection, and even partly due to a slight effusion of blood into the thickness of the tunics of the vesicles." —p. 424.

This injection of the ovaries corresponds with a strong congestion of all the genital organs of the female, which finally relieves itself by a hæmorrhage, constituting the menstrual discharge, at the end of which the ovum bursts forth from its envelop.

M. Raciborski reports two cases, which he was so happy as to observe, in support of these propositions. The first was that of a healthy, well-formed virgin, twenty-six years of age, who had had her regular menstrual discharge on the 30th August, 1842. On the 10th of September, seventeen days after, she was attacked with dysentery, which terminated fatally on the 30th of September, or one month after her last menses.

Her hymen, after death, was found intact, allowing but a small passage. The right ovary, sensibly larger than the left, presented a mammillated vesicle, covering with its base part of the anterior face, and having upon its surface some vascular ramifications, while its internal membrane was found covered with a rich and delicate net-work of vessels. This membrane was yellowish-white, scarcely a quarter of a line thick, and easily separated from the other coats, and contained within it a liquid which, under the microscope, presented a large number of white granulations, with many yellowish globules. A small cicatrix, with a red areola, was found on the posterior surface of the ovary, corresponding with a small excavation, large enough to contain a cherry-stone, covered by a membrane evidently folded, and, as it were, festooned at its edges, of an orange-yellow tint, and containing at the bottom a small softish black clot of blood, attached, by some filaments only, to the sides of the excavation.—pp. 421–4.

This last was unquestionably the trace of the previous maturation and separation of an ovum, and, without doubt, the Graafian vesicle, so much enlarged, would have been opened, had not the disease interfered with its entire changes.

Another observation is given of a girl, nineteen years old, strongly formed, &c., who was attacked with scarlatina, having had her regular menstrual discharge twenty-four days previously. She was sent to La Charité, where, two days after being attacked, she died. On examination, the two ovaries were found of greatly different volume, the left being the larger; on this a large protuberance was observed, with a spot upon its most prominent part, of a deep red colour, as large as a ten cent piece, surrounded with a broad areola of a lighter colour, and gradually losing itself in that of the envelop of the ovary. The spot was evidently the result of a strong congestion with effusion of blood into the thickness of the tissues. A crucial incision through it opened a cavity large enough to hold a very large cherry, filled with a granular matter resembling, exactly, the liquid of a Graafian vesicle hardened by alcohol, (it had been preserved in alcohol for several days before opening it,) only it was strongly coloured red. The internal membrane was no longer as vascular as in the preceding case; but presented no interval between it and the other. Besides this cavity, there was another, one half smaller, formed by a vesicle destined, probably, for the subsequent *ponte*. The left Fal-

lopian tube was united to the ovary by old cellular adherences, its extremity being folded inwards, thus stopping up entirely its abdominal opening. The right ovary showed only some traces of ancient cicatrices, and some vesicles about the size of a pea—the right tube was obliterated at its middle.—pp. 425, 428.

M. Raciborski presents these two facts, showing the condition of the vesicles at about the time of the menstrual discharge, but has never had occasion to observe any who have died during this period. Still he concludes from analogy, and from some facts which are reported by others, that the rupture does not occur till the end of the menstrual evacuation. Upon examining a woman who had died from eight to twelve days after the cessation of her menstrual period, he says, you will always meet with traces of a rupture entirely too recent to be attributed to a later period than the last menses.—p. 432. One of the ovaries presents, then, a slightly prominent swelling, surmounted by a red spot, with a linear slit, of which the edges are already agglutinated together. Upon the ovary at this spot, a cavity will be observed, already smaller than that of the vesicle before the rupture, but filled entirely with a clot of blood, generally about the size of a moderate-sized cherry. M. R. has never, in forty cases, found this to fail. These clots may be easily removed, and the parietes of the vesicles generally present an orange-yellow colour, which disappears in alcohol. The surface of the membrane is slightly folded, and, as it were, tomentous, the place where the opening had been being usually more translucent than the rest of the anterior surface. M. R. considers these clots, like the fleshy masses in the vesicles of animals, as a sort of mould to prevent the too rapid retraction of the parietes of the vesicle, a retraction which commences as soon as it is broken. The folds of the internal membrane which had formed immediately after the rupture of the vesicle, disappear in consequence of their adhesion; the more liquid portions of the clot are gradually absorbed, the clot itself becoming smaller, the cavity constantly contracting, until, at about the end of a month, it could hardly contain a cherry stone, as was observed in the first case above. Finally, the parietes are brought together, a single yellowish or slate-coloured streak, or one ≺ shaped, being the only trace left at about the end of from four to six months, generally. As long as the least trace of yellow colour remains, there still exist some traces of the internal membrane, its yellow colour being derived from an imbibition of the colouring matter of the blood.

Death occurring after an acute disease to a woman, habitually regular every month, will reveal in her ovaries marks corresponding with those above mentioned in every stage of development, while, if the disease had been chronic, of very long standing, the functions of the ovaries, like those of other organs, being arrested, they will either exhibit old cicatrices, or the vesicles will be pale and without injection, even if large. M. Raciborski remarks, as has been done by others, that the notion that the ovaries act alternately is entirely incorrect. He says, also, that in cases where obstructions in the Fallopian tube exist, so that the ovum cannot pass through it, the ovum may fall into the cavity of the abdomen and be dissolved without causing inflammation, the obstruction giving rise, as where the ovary is surrounded by false membranes, to physical sterility.

Thus the same phenomena are observed in women that are ascertained to be present in the females of animals; and the same argument by analogy, offered by M. Pouchet, relative to this point, is maintained.

The hæmorrhage from the uterus is merely an accessory to the phenomena of the periodical ripening of the ova, so that if animals do not present this, they do not therefore differ in the main and essential points connected with the function under consideration. Be this, however, as it may, many animals are known to present even this phenomenon, so that we must acknowledge the entire accordance in all essential matters between man and animals in relation to the function of generation.

Before leaving this part of our subject, we will advert to the opinion of M. Raciborski, in relation to the nature of the menstrual hæmorrhage: "It is nothing but a critical termination of the congestion which accompanies the highest degree of development of the Graafian vesicles. From all we have seen," says he, "it is probable that it coincides with the hæmorrhage which takes place in the interior of the vesicle some days before the *ponte*."—p. 446. "It cannot, therefore, differ in its nature from that of the blood, which constitutes the element of these congestions, and should be composed chiefly of arterial blood, as experience proves it to be."—p. 447. The experiments of Denis and Bouchardat show that the fluid of the menstrual discharge differs from arterial blood only in being mixed with a certain proportion of mucus. But menstrual blood does not coagulate: M. Mandl has shown that the smallest quantity of mucus or pus mingled with blood prevents its coagulation; and it is known, that where large quantities are retained in the uterus, a symptom of dysmenorrhœa, clots are formed. We have thus fully exposed the opinions of M. Raciborski, which will be found as valuable, as they are admirably laid down by this most agreeable writer. To this statement of facts we find little to add from the work of M. Bischoff, whose observations relate rather to the inferior animals than to man. He states, however, that he has been so fortunate as to have had an opportunity of examining four healthy young women, of whom three were found dead in the water and the other died suddenly. In all, the evidences of menstruation at the time of their death were undoubted, and in three of them, at the same time, a Graafian vesicle in one of the ovaries was found burst and filled with fluid blood; and in the fourth, one uncommonly swollen was observed about seven lines in diameter. In one case, he afterwards learned that the person was actually menstruating at the time of her death. From Dr. Ecker, of Heidelberg, he has an account of a young person, aged 25, who was executed, having menstruated twelve days previously. Dr. E. found in one of her ovaries a Graafian vesicle, burst and filled with a fresh coagulum of blood. He was unable to find any thing of the ovum, as might be supposed at so distant a time.

We have thus accumulated a mass of evidence, which might be greatly augmented if it were desirable, showing the correspondence of the rutting season or heat in animals with the menstrual period of women; and we may conclude this portion of our notice with another law of M. Bischoff, which he doubts not will hereafter be found true in all particulars:—"During the years in which a woman is susceptible of impregnation, an ovum ripens and is separated from the ovary, every four weeks, this phenomenon being accompanied by simultaneous hæmorrhage from the uterus. This periodical maturation of an ovum is the first and most essential condition of conception and pregnancy. At this time alone will cöitus be followed by conception; at all others this last will be impossible."—p. 43.

It is almost unnecessary to remark, that during pregnancy and for some

time during lactation, this last period, varying in different women, there is a cessation of the function of secretion, if such a term be allowable, on the part of the ovaries. We have already adverted to the opinions of our authors, upon the length of time during which impregnation is possible at each menstrual period; and we have, also, noticed an objection which may be started against this theory, and which is satisfactorily answered by our authors, viz., that women often conceive who have never menstruated—an objection which is rather specious than real, for it has been shown, that menstruation or the bloody discharge is not essential to indicate the maturation of the ovum. It may ripen, as in many animals it does, and may be discharged, without the slightest appearance of hæmorrhage.

The ovum must leave the Graafian vesicle before impregnation can take place, and hence, say Pouchet and Raciborski, ovarian pregnancies are impossible except in the case supposed by MM. Pouchet and Négrier, in which, after the rupture of the vesicle, by some means or other, the ovum is retained *in sitû*, so that it may there be vivified by the spermatozoa, and, in consequence, may develop itself within the gland. "These cases, if they can occur, must be necessarily rare," says M. Raciborski, for the instances of ovarian pregnancy reported are very imperfect, and very far from being conclusive.

M. Raciborski evidently admits the fact, that the semen passes through the oviduct to the ovaries, for he considers that tubar and interstitial pregnancies, such as are reported by M. Breschet, are not at all impossible; and although M. Pouchet denies the possibility of the semen passing along the Fallopian tubes to the ovaries, unless in exceptional cases, under the influence of sudden alarm or moral emotions—because the natural action of these ducts is to convey the ovum from the ovary to the uterus, where, he asserts, that it is impregnated—the experiments of Barry and Bischoff prove conclusively that the fact is not so, for they have both seen spermatozoa upon the ovary itself, and the latter had established this point so satisfactorily to his own mind, that he founded upon it the belief, which, until within the last two years, he entertained, that the contact of the spermatozoa was essential to the fecundation and separation of the ovum from the Graafian vesicle. It was, indeed, in the course of an experiment, undertaken for the express purpose of ascertaining how far the semen penetrated during the actual congress of the sexes, that he discovered his error respecting the supposed necessity of the contact of the spermatozoa for the separation of the ovum. His experiments prove, that in the dog the semen requires twenty hours to reach the ovary; and in the rabbit, from six to ten hours, though, as a general rule, impregnation or the contact of the spermatozoa with the ovum, which is essential to impregnation, takes place in the lower third of the oviduct in dogs, and in the upper third in rabbits. Bischoff's idea is, that the first development of the ovum, manifested by the separation of the yolk, takes place in the oviduct, the fructified ovum then passing along to the uterus.

We must still notice an error which has crept into the works on physiology, but which is a deduction from the usually-taught doctrines of generation. It is that the Fallopian tube, at the moment of a successful cöitus, is, in consequence of some supposed voluptuous spasm, caused to twist about until it applies itself, by means of its fimbriated extremity, to that portion of the ovary where the ovum, which is about to burst forth, is situated. M. Pouchet shows the fallacy of this doctrine, which must be

obvious to all who reflect for a moment upon what must necessarily take place at each menstrual period, or at the time of the ripening of each ovum: why it applies itself to the ovary at this time, which it must do, we are unable to determine farther than that it is part of the beautiful provision which nature has made for the perfection of the functions we are considering, and no voluptuous orgasm is requisite to account for its occurrence.

Can sexual congress hasten the maturation of the ova? Though it is altogether probable that the functions of the ovaries may be stimulated by the excitement of venereal desires, and by their gratification, as it is well known they may be by the education of the senses, as by music, painting, &c., it is difficult to prove the fact. M. Pouchet believes, that "sexual intercourse may hasten the emission of ova by the excitement it causes, stimulating the ovaries to a more rapid maturation of their products, rendering them earlier adapted for separation; but it is not the efficient cause of this."—p. 48. An opinion in which M. Raciborski entirely agrees.

Though we have already extended this notice to such a length, there are several important points in the work of M. Raciborski, particularly, which well deserve attention, and to which we will still briefly allude. M. R., designing to ascertain whether the coincidence of conception, occurring at the cessation of the menstrual period, was real, and, if so, to what extent, has collected some fifteen cases of women who were confined at the *Clinique d'Accouchement de la Faculté*, of Paris, and who, being unmarried and domestics, were only able to have rare intercourse with their gallants, which, occurring chiefly on *fete* days, or other special occasions, was easily recollected; among these, who alone among those questioned, could give an accurate account of their sexual connections, "not one became pregnant at a time very distant from the period destined for the *ponte* of the ovule which had reached maturity."—p. 478. In a subsequent case, he ascertained that pregnancy followed a single cöitus which took place ten days after the suppression of the menses, in consequence of fright, at the second day of their flow.

The last chapter but one of M. Raciborski's work relates to superfœtation, considered in both its aspects, the first embracing those cases of twins, for example, when one is white and the other black, (upon which M. R. remarks, "that such superfœtation is very possible, and that he does not consider that, because twins are both of the same colour, the mother is necessarily virtuous,) and the second, those cases where a child, bearing all the attributes of a fœtus at term, is born from two to five months after the birth of a first child, which appeared to be born also at term"—cases which may give rise to important questions in a medico-legal sense.

The fact that such cases do exist cannot be denied; but, as M. R. says, the true question is, at what time were these two children conceived? Was it at the same time, or with an interval between them? MM. Orfila and Devergie, while very cautiously admitting the possibility of superfœtation, advise a physician, consulted in such a case, to declare that it is very difficult to decide about them. M. Velpeau admits their possible occurrence in three cases. 1st. In extra-uterine pregnancy; 2d. When commerce with two men has been had the same day, or within a short interval; 3d. In cases of double uterus—the difficulty in the way being the impossibility of the semen reaching the ovum. But M. Raciborski thinks, that superfœtation, properly so called, is absolutely impossible, because "it would directly attack the principle which presides over the generation of all

beings, in consequence of which, everywhere and always, the *ponte* precedes the fecundation of the ovum, and the maturity of the ova precedes the *ponte*.***We may conclude, he continues, 1stly, that superfœtation can only occur in exceptional cases, where more than one ovum has arrived at maturity at the same time. 2dly. That the conception of fœtuses born successively at longer or shorter intervals, dates always from the same epoch, the fecundation of the ova being possible only at very short intervals one from the other. 3dly. That whatever point the fœtus occupies, or whether the uterus is or is not divided into two cavities, a new fecundation is impossible so long as the fruit of the first has not reached the term of its development, or until it ceases to live and to act the part of a foreign body. 4thly. That the cases hitherto reported in support of the possibility of superfœtation, and of which two examples have been given, were evidently merely double pregnancies, in which the second child had suffered for some time a suspension of development without ceasing to live." —p. 501.

The concluding chapter contains a farther dissertation on *corpora lutea*, of which the nature and the circumstances of occurrence have already been sufficiently noticed, and we are thus brought to the conclusion of our notice. Whether or not we have succeeded in fully developing the novel and striking doctrines which are brought forward in the works under consideration, we are confident that we have presented them sufficiently distinctly to show their importance, and to awaken attention to them, which are the objects at which we have aimed.

C. R. K.

ART. XI.—*Interment in Towns. A Supplementary Report on the results of a special inquiry into the practice of Interment in Towns. Made at the request of Her Majesty's principal Secretary of State, for the Home Department.* By EDWIN CHADWICK. Presented to both Houses of Parliament, by command of Her Majesty. London, 1843: 8vo. pp. 279.

THE above is the title and description of a book which has recently emanated from the highest authorities in England, upon a subject of great and growing interest in Great Britain, and in some parts of the continent.

The burial of the dead has hitherto been a subject of affectionate responsibility and social care. It has been left mainly to the church to determine the places where the body should be deposited after death; and the same authority has established the customs and regulated the ceremonies; but where religious bodies or societies have not done this, municipal authorities have stepped in to supply the deficiency.

To all those who were interested through affection, or responsible through ecclesiastical or civil authority, or social compact, for the decent and proper burial of the dead, there was nothing to fear after they had provided a suitable resting-place for the remains of the deceased; and when these were deposited where they could sleep in peace, the responsibility of the living was ended, unless, perhaps, they might desire to ornament the grave with the flower or the evergreen, and add a tombstone to

commemorate the spot of burial. No bad consequences were apprehended from this, whether it were well or ill done. Even though the dead were accumulated so as to form one great mass of putrefaction, one grand focus of putrid emanations, in the very midst of the busy haunts of life, nothing for good or evil to the survivors was expected or thought possible. It was a question of taste, affection or economy; but not of health or value of life to the living.

The House of Commons, through a committee, made extensive inquiries into the effect of decomposition of animal matter, upon the health of the living, and also into the state of the churchyards in London. Mr. Chadwick has pursued the same subject still farther, and inquired into all the funeral ceremonies, customs and expenses; the manner of caring for the body between the time of the decease and the burial; and, finally, into the effects of all these customs upon the moral, social, physical and pecuniary conditions of the people.

For this purpose, our author has examined physicians, surgeons, undertakers, grave-diggers, sextons, public officers and the residents of the vicinity of these burial grounds. The results of all these investigations, and his own opinions and inferences, are minutely detailed in the volume before us, and published for the consideration of the British Government and nation.

Funeral customs are gradual in their growth, and exceedingly tenacious in their hold upon communities. Some began with the people, others have crept so slowly and imperceptibly into existence, that none can tell when they began, or took any step in their progress. These customs differ in their details, yet they are substantially the same in their influence upon health, whether in dense cities or among a sparsely scattered population.

There is a natural desire to retain the remains of deceased friends among those who loved them in life, as long as putrefaction does not appear, and then to deposit them in the ground in the midst of the haunts of the living. By a strange inconsistency, man will grasp his acres and his lands to an indefinite extent, for his own enjoyment in life, or to leave them to his living children; yet he will allow to himself, when dead, and to his deceased fathers and offspring, the smallest space of earth that the human frame can be contained in. And not content with narrowing down this territory to his personal length and breadth. Often in cities, where land is dear, more than one, even, in some cases, as many as twenty are put into one grave, in order that the superficial space of earth may be used as economically as possible. Even the niggardly use of the graveyards is sometimes extended beyond this; for these many tenants of the same narrow house are not suffered to remain any longer than until decomposition has taken place; then their graves are re-opened, their undecayed bones and coffins are removed, and another generation has a similar and a short lease of the tenement given upon the same conditions, that they must quit under the same circumstances.

Both taste and public security are now operating to produce a change in the method and places of burial. New and ample cemeteries are provided out of the busy crowds of cities, in the stillness of the country, amid the beauties of natural scenery, where man may go to his long home and sleep undisturbed forever.

It has been, and is now questioned, by some, whose opinions we ordinarily value, whether any evil could arise from the burial of the dead

within the dense population of cities; whether the emanations from putrefying flesh could reach the living, and produce disease in their bodies. This question seems to us to be clearly settled, by the abundant evidence in the volume now before us, of the derangements, diseases and weaknesses caused by the gaseous and liquid products of decomposing human bodies.

The purpose of Mr. Chadwick's book is to show:

"That the emanations from human remains are of a nature to produce fatal disease, and to depress the general health of whosoever is exposed to them; and that interments, in the vaults of churches or in graveyards, surrounded by inhabited houses, contribute to the mass of atmospheric and other impurities, by which the general health and average duration of life of the inhabitants are diminished."—p. 197.

In pursuance of this investigation, Mr. Chadwick had every facility offered him. How he availed himself of his means is best told, in his own words.

"I have consulted ministers of religion, who are called upon to perform funeral rites in the poorer districts. I have made inquiries of persons of the labouring classes, and of secretaries and officers of benefit societies and burial clubs, in the metropolis and in several provincial towns in the United Kingdom, on the practice of interments in relation to those classes, and on the alterations and improvements that would be most in accordance with their feelings. I have questioned persons following the office of undertaker, and more especially those who are engaged in the interment of the dead of the labouring classes, on the improvements which they deem practicable in the modes of performing that service: I have consulted foreigners resident in the metropolis, on the various modes of interment in their own countries. I have examined the chief administrative regulations thereon in Germany, France, and in the United States: and I have consulted several eminent physiologists as to the effects produced on the health of the living, by emanations from human remains in a state of decomposition."—pp. 1 and 2.

The Report of the Select Committee of the House of Commons, on improvement of the health of towns, furnished abundant evidence upon the condition of the London churchyards, where the dead are congregated in such dense masses as we had no previous conception of.

"The plan on which the grave was opened, was quite in accordance with that generally observed and adopted throughout London; that is, the opening of what is called a public grave, thirty feet deep perhaps: the first corpse interred was succeeded by another, and up to sixteen or eighteen, and all the openings between the coffin boards were filled with the smaller coffins of children. When this grave was crammed as full as it could be, so that the topmost coffin was within two feet of the surface, that was banked up, and that piece of ground was considered as occupied."*

"In the metropolis, on spaces of ground which do not exceed 203 acres, closely surrounded by the abodes of the living, layer upon layer, each consisting of a population numerically equivalent to a large army of 20,000 adults and nearly 30,000 youths and children, is every year imperfectly interred. Within the period of the existence of the present generation, upwards of a million of dead must have been interred in those same spaces." Chadwick, p. 27.

In the Liverpool cemetery, the poor are buried more closely than even in London; one sexton testifies, that "thirty-four, big and little," are enclosed in one grave.

The burial-grounds of London are public and private. Most of the

* Parliamentary Report.

former belong to the several churches, and the whole of these, within the diocese, includes 218$\frac{1}{10}$ acres. Several belong to private companies, of which, eight occupy 260 acres. Others belong to individuals, who sell the right of burial and of occupancy, or rather, they lease the right of occupancy for the time required for the body to decay, after which the tenant is to vacate the premises, which are to be leased to another on the same conditions.

All of these burial-grounds receive 44,355 bodies each year. These are buried in different proportions per acre. Some acres receive as many as 3073, as in some of the parochial churchyards. Others receive as few as five in the same space, as in some of the burial-grounds not described as belonging to any religious denomination. Some of the private grounds receive 2300 a-year, and these are often filled ten deep in one grave, so that it is calculated that every acre will, when filled, contain not less than 11,000 bodies of the dead.

The effect of such a condensed mass of putrefying flesh must be bad upon the health and comfort of the living. The products of decomposition must find vent, and extend themselves to the neighbouring soil or atmosphere. The living grant the adult dead only about fifteen cubic feet of space—and within this narrow bound they may enclose the flesh—but no power, yet applied to burial, can confine the products of decomposition within that limit, or, perhaps, within a thousand times that space.

"During putrefaction, the parts become soft and flabby: they change in colour, exhale a nauseous and disgusting odour, diminish considerably in weight and afford several new products, some of which escape in a gaseous form, others run off in a liquid state, and others are contained in a fatty or earthy residuum."*

The principal elements of animal matter are carbon, hydrogen, oxygen and nitrogen: these are, in life, combined together, with other elements in various proportions, and form flesh of various kinds. So long as the vital principle holds them together, they remain in this solid or liquid form; but as soon as this ceases to govern them, they separate one from another, and are evolved in their pure elementary state, or they form new combinations one with another, and escape. The principal products of this putrefaction are water, ammonia, carburetted hydrogen, sulphuretted hydrogen and carbonic acid gas. These gases are from 800 to 1400 times lighter than the flesh in which they before existed, and, consequently, they must occupy that proportion of space in their new condition. They cannot, then, be confined within the limits of the coffin or grave, but they must have an outlet and spread themselves far abroad.

The expansive force of these gases is very great, sufficient to burst coffins, and make their way through the porous earth to the surface, or to either side. Even in soils of clay, they will force an opening, and rush outwards through the fissures. Lead coffins, or those made of wood, however strong, are unable to resist this expansion.

"Some years since a vault was opened in the churchyard (Stepney), and shortly after one of the coffins contained therein burst with so loud a report, that hundreds flocked to the place to ascertain the cause. So intense was the poisonous nature of the effluvia arising therefrom, that a great many were attacked with sickness and fainting."—p. 15.

"I have known," says one undertaker, "coffins to explode like the report of

* Webster's Chemistry.

a gun. I was once called up at midnight by the people, who were in great alarm, and who stated, that the coffin had burst with a report, like the report of a cannon."—p. 15.

The extent to which these gases pass through the earth, must depend upon the looseness of its texture and upon the quantity of putrefying flesh gathered together. The lighter products tend to rise upward, and no depth of burial, that has yet been tried, has prevented their reaching the surface and mingling with the atmosphere.

Wherever these products of decomposition go, they mingle with the fluids and gases which they meet. They incorporate themselves with and taint the waters that filter through the soil, and the springs that run in the earth, and they mix with and corrupt the air above the surface. The wells and the fountains become thus contaminated with the noxious qualities of these putrefactive compounds. This is what we should believe *à priori*. The very simplest principles of chemistry and natural philosophy would teach it; and it is corroborated by the evidence of undertakers, sextons, grave-diggers and other churchyard workmen, and, also, of the residents of the vicinity of these foci of putrid emanations.

It cannot be doubted, that these emanations of the dead are injurious to health and destructive to life. Pure and unmixed air is the only healthy respirable gas. All adulterations impair its power of decarbonizing the blood. This is the case if the adulterating material be merely a diluent. But if it be noxious, there must follow the double consequence of impairing its vivifying power and of producing positive injury. The respiration of sulphuretted hydrogen, carburetted hydrogen, ammonia, or of carbonic acid gas, is acknowledged to be injurious, even in the small and manageable degree to which one is exposed in a chemical laboratory.

These gases affect the living body, not only through the atmosphere as a respirable body, by interfering with pulmonary functions, but there is another and more general effect of these gases upon the body through their contact with the cutaneous surface. We think we do not make too bold use of language, if we speak of the contagion of death as well as the contagion of disease. Chemically we produce fermentation in certain vegetable matters or compounds, by the presence of or mixture with other matters or compounds that have already gone through that fermenting process. Pathologically, the contagious or infectious diseases—as small-pox, scarlatina, typhus, are generated by the presence of or contact with the emanations from others, who are thus diseased. So by a similar law, the emanations, the exudations, or effluvia of putrefying flesh may produce putrefaction, or some organic lesion, or some functional disturbance—it may produce some disease—in the living and healthy body.

"Dr. Lyon Playfair states: 'Both decaying and putrefying matters are capable of communicating their own state of putrefaction or of decay to any organic matter with which they come in contact. To take the simplest case, a piece of decayed wood, a decaying orange, or a piece of tainted flesh is capable of causing decay or putrefaction in another piece of wood, orange or flesh. In a similar manner, the decaying gases evolved from sewers, occasion the putrescence of meat or vegetables hung in the vicinity of the place from which they escape. But this communication of putrefaction is not confined to dead matter. When tainted meat or putrescent blood-puddings are taken as food, their state of putrefaction is frequently communicated to the bodies of the persons who have used them as food. A disease analogous to rot ensues, and generally terminates fatally.'

"The decay or putrefaction communicated by putrid gases or by decaying

matters does not always assume one form, but varies according to the organs to which their peculiar state is imparted. If communicated to the blood, it might possibly happen that fever may arise: if to the intestines, dysentery or diarrhœa might result: and, I think, it might be a question worthy of consideration, whether consumption may not arise from such exposure. Certainly it seems to do so among cattle. The men who are employed in cleansing out drains, are very liable to attacks of dysentery and diarrhœa.

"The effects produced by decaying emanations will vary according to the state of putrefaction or decay, in which these emanations are, as well as according to their intensity and concentration."—p. 21.

When the tyrant of antiquity bound the living to the dead for the purpose of torture, his object was not only to offend and disgust the senses, but to convey the death of the corpse to the living companion. We, in modern time, look upon this as the work of the most degrading tyranny, which could have existed only in a most barbarous age; or, possibly, the tale was the invention of a morbid imagination, rather than the record of a faithful historian. But it is no imaginary circumstance, that binds the living to the dead in our day. The depositories of the dead are now in the midst of the dwellings of the living. In all of these, the human flesh is gathered and left to rot. In some, as we have already seen, the bodies are piled, layer upon layer, from thirty feet below to within two feet of the surface of the earth; and this solid mass of corruption sends forth its nauseating and deadly compounds, to penetrate through the ground and mix with the atmosphere, so that the dwellers and labourers in the vicinity breathe these noxious emanations in their air; they drink them in their water; they have them in contact with the surface of their bodies.

The effluvium from some cemeteries is so disagreeable as to be the subject of complaint from those who lived near to them. It is stated by a military officer, "that when his men occupied as a barrack, a building, which opened over a crowded burial-ground in Liverpool, the smell from the ground was exceedingly offensive, and that he and his men suffered from the dysentery." The churchyard of St. Innocens, in Paris, was so disagreeable and unwholesome, that the authorities determined to remove all the dead from it to another place. The people, who lived around it, had, for years, complained of the stench that arose from it. In 1755, the inspector, who was entrusted with the inquiry into the state of this ground, saw the vapour rising from a large common grave. One gravedigger testified, that he had seen the surface of the earth of the burial-grounds of St. Clements and Danes, in London, reek and smoke, on a summer morning, with the gas exhaled from the putrefying flesh below. When the old graveyard of St. Clements was turned up, "the stench was abominable," although it had not been used as a burial-place for forty years. The same is observed in some churches, where cemeteries are below the floor. A woman, who was accustomed to shake and cleanse the matting of a church, under which the dead were buried, said, "that the dust and effluvia which arose always had a peculiarly fœtid and offensive odour, very unlike the dust which collects in private houses; and that it invariably made her ill for at least a day afterwards.

These putrescent emanations floating in the atmosphere, not only offend our olfactories, but they affect meats with their own corruption and bring on putrefaction in these, if they touch them. Fresh meat, when hung near the ground in the vicinity of St. Margaret's churchyard, was tainted. Meat sooner becomes putrid near the churchyard of St. Innocens than elsewhere.

The gaseous and fluid emanations penetrate the cellars and infect the air in them, if situated near the cemeteries. The atmosphere in these *becomes* loaded with a mephitic vapour, and the walls are often covered with a moisture, which is poisonous to be touched. One workman, who was employed in such a cellar, put his hand upon the wet wall, and did not wash it, as he was advised to do. In three days, the whole arm was numb, the hand and lower arm became painful and swollen, blisters appeared upon the skin, and the epidermis came off.

"In 1779, in a cemetery which yearly received from 2000 to 3000 corpses, they dug an immense common grave. This was fifty feet deep, and made to receive 1500 to 1600 bodies. But in February, 1780, the whole of the cellars, in the street, were no longer fit for use. Candles were extinguished, by the air, in these cellars; and those who approached the aperture were immediately seized with alarming attacks."—p. 5.*

Common-sewers become more offensive when they pass through burial-grounds. The exudations from the coffins penetrate even through the brick walls of these drains; the cement is no protection. Evidence upon this point, as well as upon others, is given in Mr. Chadwick's Report. One surveyor of sewers in the Holborn and Finsbury divisions, said he could always perceive a difference between the effluvia from sewers which had passed through or under a cemetery, and that which came from others.

"Professor Brande states, 'that he has frequently found the well-waters of London contaminated by organic matters and ammoniacal salts.' He thinks, that the *soil* of some of the London churchyards is surcharged with the products of decomposition—that all the waters, that fall upon the surface and filter through the ground, must carry some of these noxious matters with them to the springs and wells in the neighbourhood. He mentions instances to substantiate this opinion. Many wells in Leicester, and other places, were given up, on account of the stench which the waters received from the dead. Mr. Port states, 'that he had a pump, the water of the well attached to which had been very good, and used for domestic purposes; but that since a burying-ground was formed above his house, the water in his well had become of so disagreeable a flavour as to prevent its being used as heretofore.' "—p. 25.

Sir James Macgregor states, that at Ciudad Rodrigo, in Spain, 20,000 bodies were buried in one field, within a period of two or three months. Soon afterwards, the emanations from the surface were so offensive, and the wells so polluted, that the troops were attacked with "malignant and low fevers and dysenteries, or fevers frequently putting on a dysenteric character." Dr. Reid says, that the surface of a glass of water, given to him at a hotel, was covered with a peculiar film, which, he was convinced, "arose from the coffins in a churchyard immediately adjoining the well where the water was drawn."

After many and satisfactory inquiries upon this subject in France, a law was passed prohibiting the opening of wells within 327 feet, (100 metres,) of any place of burial. This distance is now found to be insufficient for deep wells; for some have been tainted twice as far from the graves, and, in some of the German states, wells are forbidden to be dug within 981 feet, (300 metres.)

The carbonic acid gas being heavier than air, runs like water to the wells, caverns, and hollows in the vicinity. The grave-diggers state,

* Quoted from a Report of Dr. Reiche, of Stuttgart, *On the Influence of Putrefactive Emanations on the Health of Man.*

that, when they dig graves by the side of others already filled, they perceive this gas, which flows from the decaying bodies in the contiguous graves. This renders it dangerous for them to work in the deep pit. Painful and even fatal accidents have sometimes happened from incautious continuance in these. Some churchyards, by long use and the accumulation of bodies, become raised several feet above their original level, and are therefore higher than the floor of the church. The bottom of this building is then a hollow, into which the gas flows by mere gravitation, and some bad consequences have followed from this condition of things to the worshippers.

It will not be doubted from the foregoing testimony and facts, that the emanations from the decaying bodies of the dead are abundant and penetrating, perceptibly offensive and deleterious. We have not space to quote more than a slight portion of the evidence adduced to establish these principles; but, for further information, we refer our readers to Mr. Chadwick's book itself, to the Report of the Committee of Commons on the Improvement of the Health of Towns, and to an able article on the subject in the Westminster Review.

That these emanations are prejudicial to the health and strength of the living will not be questioned. But in regard to the power of doing harm and the extent of injury actually caused, there is a difference, and perhaps a very wide difference, of opinion, among even medical men. That dead matter, in any of its stages of putrefaction, is noxious to life none dispute. There are few physicians that have not seen, and many have felt the dreadful effects of a slight wound upon a finger, received while dissecting a putrescent subject, or while conducting an autopsy of a person that died of a malignant disease. Within a few months, and among our professional neighbours, two have died, and a third has been dangerously affected from wounds which they received while engaged in these post-mortem examinations. Mr. Chadwick has quoted similar instances from Dr. Southwood Smith: but we need not give these here, for unhappily all of us have seen too many such cases to want further proof of the noxiousness of putrescent human flesh. These disturbances arise not from human flesh only, but from any other in a state of decay.

"A lady in the country received a basket of fish from London, which had become putrid on the road. On opening the basket she pricked her finger, and she slightly handled the fish. On the evening of this day inflammation came on in the finger, followed by such severe constitutional symptoms as to endanger life, and it was six months before the effects of this wound subsided and her health was restored."—p. 18.

A cook-maid suffered similar consequences from a wound which she received while boning a stale hare.

In these cases the morbific matter was applied directly to the denuded absorbent surface as vaccine matter is applied beneath the cuticle. But it is not necessary for the absorption of the poison, that the skin should be broken and the flesh exposed. This mephitic gas is diffused through the atmosphere in almost infinitely minute particles. In this state it is inspired and brought into contact with the extensive absorbent surface of the air-cells of the lung.

In this way specific diseases are often communicated through the medium of an infected atmosphere. Contagion takes place without contact. Small-pox is produced with as great certainty through the atmosphere and our lungs as when tangible and visible particles are taken from the patient and applied to the skin of the susceptible.

"Dr. Williams relates the case of four students infected with the small-pox by the dead body of a man, who had died of this disease, that was brought into the theatre for dissection. One of them saw the body, but did not touch it; another was near it but did not touch it; a third, accustomed to make sketches from dead bodies, saw the subject but did not touch it: the fourth alone touched it with both his hands, yet all four caught the disease."—p. 14.

Sir Benjamin Brodie corroborates the above by similar examples.

The effect of this pulmonary absorption is, in some known cases, astonishingly rapid and powerful. Life is destroyed by a single inspiration of the concentrated prussic acid almost as effectually and suddenly as when one is struck down with lightning. "Dr. Copland stated, that a Dissenting clergyman under his care, informed him that he went, on the Sunday previous, to officiate at the chapel, and, on going up the steps, he felt a rush of foul air issuing from the grated openings at each side of the stairway. The effect upon him was instantaneous; it produced a feeling of sinking with nausea and great debility." These feelings increased so that he soon left the chapel, took to his bed, and died in eight days. His wife took the same disease, exhibited the same symptoms, and died in the same period.

Other instances are given of the sudden attack of sickness and disease following a similar exposure to this mephitic gas. When a coffin burst and discharged its gases, "so intense was the poisonous nature of the effluvia that a great many were attacked with sudden sickness and fainting." In another case, "instant nausea and vomiting" are said to have been produced in the by-standers.

Dr. Arnott states, that "during the Burmese war, two soldiers, in digging a grave for a comrade, accidentally opened a coffin, previously there, and inhaled putrid effluvium, which caused the death of both within eighty hours."

"In the Hornet corvette, while in the West Indies, several persons died of fever, with black vomit, in consequence of inhaling the putrid effluvium from a vessel of preserved salmon."*

Some cases of grave-diggers dying instantaneously from inhaling the concentrated miasmata from coffins are reported. In the Lancet is the case of a man who, while digging a grave in the churchyard of St. Margaret, Westminster, was suddenly seized with faintness and excessive chilliness, giddiness, and inability to move his limbs. He was seen to fall, was removed home, and died within a few days. His medical attendant was seized with precisely the same symptoms, and died in four days after the grave-digger. His servant was attacked the day after the death of her master, and died in a few days.†

More evidence of this kind might be adduced, but here is enough to prove the danger of inhaling these gases in their concentrated state. When they are spread in the atmosphere and diluted, they are less noxious; but, even in this condition, they are not entirely harmless. They are sometimes carried, in their concentrated state, by the winds to houses of people beyond the churchyards, and produce evil consequences similar to those already described. One family always received the graveyard fœtid odour whenever the wind blew from that quarter, and the members of the household were made sick on these occasions.

There is a common notion that deep burial is a sufficient protection for the living against the influence of the miasmatic products of decomposi-

* Sanitary Inquiry, Scotland, p. 38. † London Lancet, June 13, 1840.

tion. Therefore the municipal laws of many places direct the graves to be dug to such a depth as is supposed to be sufficient to prevent the escape of the gases. Five feet are generally considered to be a safe depth. Some are buried deeper; and the upper layers of bodies, in some churchyards, are not half this depth below the surface of the ground. But these gases must have an outlet for escape in some direction. Horizontally or vertically they must spread far and wide. Some have attempted to prevent their rising by very deep burial, and placing a covering of twenty feet of earth above the bodies, but without success. Even from this depth the poisonous exhalations have arisen and been perceived on the surface.

The more porous the soil the more ready and free is the escape of the gas upward and outward; but, if the surface be compact and trodden, or covered with pavement, the gas is diffused so much the farther to the right and the left, and reaches and poisons the wells and the springs so much the more extensively.

Neither is any length of burial a security against the presence or destructive power of these gases. In some tight coffins or vaults they may be retained for years, and even for ages. One undertaker bored a hole in a coffin that had been buried eight years; immediately a gas issued from it, which was so offensive and oppressive that he was nearly killed by it. He took some of it home in a vessel, and lost some of it in his house. The whole dwelling was filled with the stench, and he was made so sick by it that he was confined to his bed a week afterward. A similar instance happened from a coffin that had been buried about fifty years. When the revolutionary mob of Paris broke into the vaults where the kings had been buried, and opened the coffins for the sake of plunder, they were overpowered and sickened by the gas that issued from the coffin of Francis I., who died in 1557, and had therefore been buried almost two and a half centuries.

The plague had formerly raged in Eyam, but had ceased for ninety-one years. One of the graves, in which was deposited the body of a person that had died of this disorder nearly a century previous, was opened, and sent forth an effluvium that reproduced this epidemic, which again prevailed, and destroyed many in the town.

The earth is supposed to act, somehow or other, chemically or mechanically, as a purifier of the fluids that pass through it, or as a destroyer of the noxious qualities of whatever is deposited in it, therefore, burial is considered by many as an effectual security from all harm, that might arise from any putrefying matter. There is, certainly, a fallacy in these opinions. The mephitic products of animal decomposition must continue in their gaseous and liquid state, as they are sent forth from the rotting flesh, until they are decomposed and resolved into their simple and innocuous elements, or until they are combined with other substances, and, with them, form innocent compounds. Unless one or the other of these things takes place, these deadly emanations must remain as noxious as when originally evolved. Some of these gases reach the atmosphere, and are there so diluted as to be imperceptible. Much, perhaps all, of the carbonic acid is absorbed by vegetation. The other products, which do not rise above the surface, must be mingled with the particles of the earth, or mixed and incorporated with the waters that run in its channels or trickle through its pores. Some of the earths may decompose or combine with a portion of these noxious emanations; but disintegrated rocks and alluvium, sand, gravel and clay, can have no such chemical affinity for these, nor power

to neutralize their poisonous nature. As they first come from their putrid source, so they will continue, without change of qualities. They may change their place, but not their character. They move as the pressure of increasing matters, spreading from the focus of decomposition, forces them farther and farther outward, or as the currents of water carry them. The rain waters that come downward from the surface, and the spring waters that flow horizontally through these grounds, must carry these emanations along with them to their reservoirs, to the wells and to the springs.

If these grounds are not thus worked thoroughly and frequently, they become saturated, and remain charged with the noxious matters, for aught we know, forever. Some old burial-grounds, which have not been used for forty years, on being turned up, have given out the offensive effluvia of these products of decomposition. The soil had neither changed nor neutralized them. The earth was, and is, in almost all cases, merely a vehicle to hold them, or a passage way for their progress.

Although, in most cases, the presence of these gases is made known by their offensive odour, yet frequently they are not perceptible to the olfactory nerves; and are then only discerned by their effects upon the system. Some undertakers state that they have suffered nausea and faintness, while employed in their vocations; but, at the same time, they smelt nothing disagreeable. On the other hand, men have suffered severe impressions through the nerves of smell alone. But, generally, these emanations are harmless, if not perceptible to the nasal organs.

Through the atmosphere above, and the waters under the earth; through the various media of our bodies, the lungs, the nostrils, the stomach and the skin, it will not be doubted that the results of putrefying flesh are injurious to the living. These deleterious powers are manifested in various ways, and produce various symptoms in different persons, and at different times and places, being influenced by many preceding and coexisting circumstances. In some persons, they generate specific disease, a low, malignant and contagious fever: in others, they cause diarrhœa, dysentery or other intestinal disturbances. Headache and nausea sometimes follow exposure to them; and, in some cases, the specific disease, small-pox, &c., by which the dead had fallen, is produced by the gases that rise from putrefaction of the body.

The weak and sickly suffer more from this exposure than the stout and robust. Those who are predisposed to any derangement, are liable to have this return, when these emanations reach them. One family had returns of headaches and sore throats, to which they were predisposed, every time the wind blew the miasmata from a crowded churchyard, which was near by.

Those who are already sick are made worse. The Montfaucon is the receptacle of the dead horses of Paris. There the flesh of these animals is undergoing putrefaction, and is sending forth putrid effluvia to the surrounding region. The Hospital St. Louis is situated within reach of these miasmata, and whenever the wind drives from the receptacle towards that charity, it was observed "that the wounds and sores assumed a foul aspect." Hospital gangrene manifested itself there under the same circumstances, and "this malady is much more frequent in this hospital than in any other in Paris, although it is much the most airy and least crowded."

Generally, this miasm is so diluted in the air as not to produce specific disease, but a depression of life, a reduction of vital power, and a diminished ability to resist other attacks of disease, in those who live within its reach.

"The injurious effects of diluted emanations are constantly traceable, not in constitutional disturbance at any one time; they have their effect even on the strong, perceptible over a space of time, in a general depression of strength and a shortened period of existence."—p. 12.

The labourers in churchyards are often pale, and even wan. The same is said of the butchers of Bristol, whose life and work are in close and unventilated courts.

The evils consequent upon the burial of the dead among the living, are modified by many circumstances; they are diminished or increased; but, in a greater or less degree, they are inevitable in most cases. Whether the dead are rapidly gathered and heaped into one vast corrupting mass, perceptibly reeking with its mephitic effluvia, as in some of the churchyards of London; or whether they are deposited at long intervals, and at wide spaces one from another, as in most of our country burial-grounds, still decomposition must follow death, noxious gases and fluids must be evolved, and these must spread themselves through the ground or into the atmosphere, probably into both.

We, in America, at the present time, are in no great danger of suffering from this accumulation of the dead. Nothing like that which has been described as prevalent in some cities of England, can exist in our cities for ages, perhaps not for centuries. In the country towns of New England and, we believe, in other parts of the United States, there is but little or nothing to fear on this account. Their burial-grounds are sufficiently large, so that some space is left between the graves, and never, except, perhaps, in the instance of a mother and child, are the bodies deposited one over another in the same grave; and, when once closed, the grave is never re-opened for use; the original tenant is the sole and undisturbed occupant of his narrow home forever. It is rare that a family is so poor or so mean as not to desire a stone to mark the spot, where one of its members is buried, to tell the dates of his history; and, perhaps, to add to this a record of his virtues in life, and of his hopes in death. These monuments stand here, declaring to many succeeding generations, that the ashes of him, who first slept beneath, still sleep there unmolested. In the burial-ground of this town, Dorchester, Massachusetts, are the grave-stones of some who were buried there when the country was first settled; one is dated as far back as 1638, and no municipal authority would dare or wish to disturb it or the tenant beneath it.

In our cities there is more danger of over-accumulation of the dead among the living. In Boston are eight burial-grounds, some of which were opened and used two hundred years ago, and are now full and but rarely used. Besides these, there are cemeteries under seven of the churches, in which are two hundred and forty-six tombs. In the burial-grounds are nine hundred and twenty-seven tombs, besides the open space for graves. In some of the public grounds, three bodies are put in some of the graves, which are never re-opened. The practice now is to put the bodies of the poor into one large tomb, until it be full. Then this is closed and left undisturbed for twelve or fourteen years. In this time the flesh is decomposed, the bones only remain; then these tombs are opened and emptied; the coffins are burned and the bones are thrown into one vast charnel house, and there man finds a longer home, and finishes his work of decay.

The south ground contains two and one-fifth acres, and is the place of burial for most of the poor. Here is the city tomb just described. This

is on moist land, not much above the level of high tides. The soil is of compact clay, and on the east side quite wet. It is, therefore, unfavourable for decomposition. The graves are dug with a space of about one foot between them at the sides, and room for a walk at the ends. But in the wet portions, they approach more nearly, inasmuch as the intervening wall of earth will not remain while the grave is open. Very many of the poor are buried at the Catholic cemetery, at south Boston; and many of the more favoured classes are buried at Mount Auburn Cemetery, four miles west of the city.

It is more than a matter of taste that rural cemeteries are now becoming common in the neighbourhood of cities, for the use of their population. These will remove from future generations some of the causes of sickness and death that have hitherto existed in the midst of the people.

Some of the German cities have adopted these, with a more careful regard to their effects upon the living than we have done. In these, the depth of the graves, the space between them, the single occupancy of each, are all determined and enforced, and thus they avoid many of the evil consequences which otherwise would attend the burial of their dead.

The location of a burial-ground, the nature of its soil, all the arrangement of the graves, and the ornamental embellishments, are of great importance to the health of the living, and should be determined accordingly.

It should be situated at least fifty rods from any habitation, and, of course, out of the dense population of cities or villages. It should be in loose, porous soil, to facilitate the gradual transmission of the gases outward, so that they be not accumulated. It should be on an elevated site, so that these gases should be diluted by the atmosphere and extensively dispersed, and on the leeward side of a town in respect to the prevailing wind, so that their effluvia be blown away from the people. It should not be on the upper part of a declivity, while families dwell below, for there the springs and drainage of the tainted graveyard would supply their wells and corrupt their waters. Nor should they be in deep dells, where the heavier gases would gather and lay in the cavity, to the danger of the labourers and funeral attendants.

"The progress of the decay of the body varies according to the nature of the soil in which it is buried, and the surrounding agencies. Clayey soil is antiseptic, and it retains the gases and excludes the external atmosphere." "Loomy, ferruginous and aluminous soils, moor earth and bog are unfavourable to decomposition; sandy, marly and calcareous soils are favourable to it." "Water, at a low temperature, retards decomposition." "The remains of the young decompose more rapidly than the old; females more than males; and the fat more than lean." And some diseases cause the body to decompose more rapidly after death than others.

There is a natural and a common desire that the bodies of dead friends should retain their form and their faces, the expression of life as long as possible; and, therefore, affection would select the soil the most unfavourable to decomposition. But the clay, which would retard this process, will, by its compact texture, prevent the gradual escape of the gases as they are evolved. Being thus retained, they acquire a concentrated power of destruction, and at last they burst their enclosure and force their way to the atmosphere, carrying with them a more deadly energy. At the same time, this compactness of soil prevents the motion of the exudations to any distance side-ways under ground, and, therefore, the wells and springs are not reached and tainted so extensively as in a looser earth.

The reverse is the case with the sandy or loamy soils; they permit the free passage of these exudations to any distance below the surface, and waters are corrupted though quite remote from the graveyard. But the air is less tainted, the gaseous products escape from the ground as fast as they are evolved from the putrefaction, and they mingle so gradually with the atmosphere, and become so diluted as to be less perceptible, and thus they pass off almost innocuously.

The ornamental decoration of a burial-ground is not merely to please the eye; it has an important effect upon the health of the neighbourhood. Trees, shrubs and flowers should be selected and arranged in reference to their influence over the escape of the gases, or to their power to absorb them. Trees of dense foliage, such as the horse-chestnut, the maple or the ash, prevent the access of the sun, which is necessary to facilitate the decomposition of the bodies. They interrupt the free circulation of the air, which would otherwise carry off the emanations as fast as they come to the surface. The leaves of vigorous and healthy vegetation will better absorb the carbonic acid gas above, and the roots will find nutriment by absorbing the exudations below the surface. This carbonic acid gas being heavier than air, naturally keeps near the ground; and it is absorbed by the leaves only under the direct influence of light. Tall trees with dense foliage are out of the reach of this gas, and can, therefore, absorb comparatively little of it; and their density would prevent the rays of the sun reaching the undergrowth and sward vegetations, and stimulating them to do this work of absorption. Therefore, such trees are improper ornaments for a churchyard, and dark forests are unsuitable places for the burial of the dead.

"Mr. Loudon recommends, for planting in cemeteries, trees chiefly of the fastigiate growing kind, which neither cover a large space with their branches nor give too much shade when the sun shines, and which admit light and air to neutralize any mephitic effluvia. Of these, are the oriental arbor vitæ, the evergreen cypress, the Swedish and Irish juniper, &c. For the same reason, trees of narrow, conical forms, such as the red cedar, and various pines and firs, are desirable. In advantageously situated cemeteries, some of the larger trees, such as the cedar of Lebanon, the oriental plane, the purple beech, the dark yew and the flowering ash, mountain ash, sycamores, thorns, hollies, and some species of oak, such as the evergreen oak, the Italian oak, with flowering trees and shrubs, would find places in due proportion."—p. 132.

The depth of the grave is worthy of careful consideration. Very deep burial prevents the access of air, and thereby delays the process of decomposition. It also causes the exudations to be extended more widely through the earth, and is injurious to the springs at a greater distance. "At Frankfort, the average depth prescribed for graves is five feet seven inches; at Munich, six feet seven inches; in France, from four feet ten inches to six feet; in Austria, six feet two inches, if lime be used."—p. 128.

In some places, the depths vary according to the age of the deceased, as at Stuttgart; for bodies of persons under eight years, three feet nine inches; eight to ten years, four feet seven inches; ten to fourteen years, five feet seven inches; and adults, six feet seven inches. At Boston, the depth is from four feet for children, to eight feet for the lowest layer of adults.

The space allowed for the graves varies in different places. Dr. Reicke calculates that each adult should be allowed fifty-four square feet, each youth twenty-seven feet, and each infant twenty-two feet, and only one in

each grave. The directors and operatives of the London churchyards seem to allow the narrowest space, into which the bodies of the dead can be placed, and to have applied the art of packing as rigidly as a stevedore stows his ship with freight. In our country burial-grounds, about three feet in width are allowed for adults, and a space sufficient for a walk between the ends of the graves.

Beside these evils attendant upon this crowded burial in the metropolis and other large cities of Great Britain, there are many others connected with the management of the dead, before the body is deposited in the ground. These Mr. Chadwick has faithfully investigated and reported at length, in the present volume. We have not space, nor is it necessary for our purpose, to go into the details of these, as we have done in regard to the burials. But a slight notice of some of them, and a more extended notice of others, may not be uninteresting to our readers.

There is a strong and prevalent disposition, among the poor of England, to retain the bodies of their deceased friends as long as possible in their houses. Sometimes this arises from affection, at others from want of means to meet the expenses of the funeral; and, at others, from a fear of burying the living. Beside these motives for delay, there is a general preference, especially among the poor, to have the funeral on the Sabbath. If the death happen early in the week, these people retain the corpse until the succeeding Sunday; if it take place in the middle or last of the week, the second Sabbath afterwards is usually the day appointed for the burial.

The domestic condition of the labouring classes is described minutely in Mr. Chadwick's former report,* and also in the local reports upon the sanatary condition of England and Wales, and Scotland. Most of these families have but one room, and this often of very small dimensions, and imperfectly ventilated and lighted. In this single room are the father, the mother and the children. In this small space they eat and drink, they cook and work. Here the females sit and labour, and the children play during the day; and the whole, male and female, old and young, sleep during the night. Here the children are born, and the members of the family are sick and die; and here, in the midst of all the household labours, the preparation for and the support of life, the corpse is retained, and, in many cases, even until putrefaction takes place.

The crowded state of these dwellings is beyond our experience. From an examination of the inner ward of St. George's, Hanover Square, one of the districts of London, "it appeared that 1465 families of labouring classes had, for their residence, 2175 rooms and 2510 beds." Of these, 929 families had each one room, 408 had two rooms, 95 three rooms, 17 four rooms, 8 five rooms; a few were not ascertained.† "But of 5945 persons, 835 were found to be ill, and yet the season was not unhealthy. Among these, not one family in eleven had a third room to place a corpse in; not half had a second room for this purpose. Some districts were in a worse condition than this. Among the poor of the borough of Mary-le-bone, not one family in a hundred had a third room. In many cases more than one family occupied a single room."‡ In the parishes of St. John

* General Report on the sanatary condition of the labouring classes of Great Britain, from the poor laws commissioners. Presented to both Houses of Parliament, by command of Her Majesty. 1842.

† Report, p. 31.

‡ Ibid., p. 32.

and St. Margaret, out of 5183 families, 3852 inhabited single rooms. The size of these rooms ranges from eight feet by ten feet, to eighteen feet by twenty-four feet, and more than three-fourths of them, 4094 were fourteen feet long by twelve feet wide and less.*

In Bristol, 556 families occupy each a part of a room; 2244, each a single room; 1439, each two rooms, and 1752 three or more.†

In Tranent, "the families of most of the labouring people are crowded, in consequence of the smallness of the apartments. Where there are many children, it is common for ten to twelve people to inhabit one apartment, and for four children to lie in one bed, both in health and sickness."‡

"In one of these rooms I have witnessed a father, mother, three grown-up sons, a daughter, and a child lying at the same time with typhus fever."§

The General Sanatary Report, from which we quote these paragraphs, and also the local reports upon the sanatary condition of the labouring classes of the towns of England, Wales and Scotland, in full octavo volumes, are filled with similar accounts of the crowded condition of the houses of the poor, of both the cities and the country of Great Britain.

Among these classes, the provisions for the residence of the living as well as for the abode of the dead, have not been augmented with the increase of tenants. The population of the metropolis, from 1831 to 1841, had increased 16 per cent., while the houses had increased only 15 per cent. This deficiency, we doubt not, fell mostly upon the poor. Throughout England and Wales, the difference has been in favour of accommodation, being an increase of population 14.5 per cent., of dwellings 18.4 per cent.‖

It is in the dwellings thus crowded, that the corpses are kept for a period so long as to be offensive to the senses, and dangerous to the health of the inhabitants. The evidence on this point is ample; we give a few specimens from Mr. Chadwick. Mr. Leonard, surgeon and medical officer of St. Martin's-in-the-Fields, caused a patient to be removed from her room, and says:

"I could not remain in it two minutes; the horrible stench arose from a corpse, which had died twelve days before, and the coffin stood across the foot of the bed, within eighteen inches of it. This was in a small room not above ten feet by twelve feet square, and a fire always in it, being (as in most cases of a like kind) the only one for sleeping, living and cooking in." p. 33.

A woman, with her child ill of a fever, was in her father's room, only ten feet square. Soon the grandmother and grandfather were taken sick. There was but one bedstead in the room. They would not be removed. The grandmother died, but was not carried away, until the husband became delirious. He was taken to the hospital and died. Soon afterwards two of his children died also, and out of a family of six, inhabiting this small space, five died of a fever.

Other instances are given of fever following successively through most of the members of a family, and the dead bodies being retained amidst the sufferings of the sick, and the living operations of the well.

In one room, a man, wife and six children lived. The mother died of fever and was not removed for five days: the eldest daughter died in the

* Journal of London Statistical Society, vol. iii., p. 22.
† Ibid. vol. ii., p. 371.
‡ General Sanatary Report, p. 123.
§ Ibid. p. 124.
‖ Report upon Census of England and Wales, for 1841.

same way, and was retained three days. Three more children died of the same disease; the fifth and sixth had similar attacks, but recovered.

Some corpses are kept three weeks before burial, and even after decomposition has begun. One undertaker says:

"In cases of rapid decomposition of persons dying in full habit, there is much liquid; and the coffin is tapped to let it out. I have known them to keep the corpse after the coffin had been tapped twice, which has, of course, produced a disagreeable effluvium. This liquid generates animal life very rapidly; and within six hours after a coffin has been tapped, if the liquid escapes, maggots or a sort of animalculæ are seen crawling about. I have frequently seen them crawling about the floor of a room inhabited by the labouring classes." p. 38, 39.

Whatever may be the disease, however malignant or contagious, the same recklessness of the health of the survivors is shown, and thus the contagion is kept active in the family, and spread to the neighbourhood.

A surgeon was called to a family in Stepney, where five persons lived in a room nine feet square and six feet high, scantily ventilated and lighted. One child had the small-pox and died, but was retained in the room. Two others were soon attacked, and also a child of another family who visited the corpse. The stench from the living and the dead was so oppressive, as to create severe headache and nausea in the medical attendant.

Some of these families, even in these narrow rooms, take in other lodgers; and when death takes place, still the household and the lodgers gather there to eat and to sleep. One witness says, "I have seen a child die of the small-pox and another dying, and the house full of lodgers eating their meals." p. 41.

The presence of these dead bodies among the living, seems to be as injurious to the moral as well as the physical nature. The watching of the family and friends is often a scene of carousal and intemperance, rather than of solemn and quiet mourning. Mr. Liddle, the medical officer of Whitechapel district, says he has found an indifference among the people toward the remains of the dead; usually "the family is found eating or drinking, or pursuing their usual callings, and the children playing."

When to these influences of the dead upon the living, both before and after interment, we add the conditions of the houses of the poor, their want of room, of light and air, the filth of the streets, lanes, courts and wynds, which have been brought to the public eye through the several sanatary inquiries and reports,* it will not appear strange that epidemic and contagious diseases should prevail among these classes, that sickness in general should be more rife, men more feeble, death more frequent, and the average longevity less among those who are thus situated and exposed, whose dwellings and domestic habits have been thus described, than among those who are better able to protect themselves from malaria and contagion.

In London, in the families of the gentry and professional persons, twenty-four per cent. of all the deaths were of children under ten years of age; while, in the families of the labourers, more than fifty per cent. died under that tender age. In the former class, less than ten per cent. died of epidemic, endemic and contagious diseases, while in the latter, more than

* See General Report throughout. Local Reports of Scotland, Edinburgh, p. 153; Dumfries, p. 214; Local Reports of England and Wales, Birmingham, p. 192; Liverpool, p. 282, &c.

twenty per cent. died of these causes. The average longevity of the first class was forty-four years; of the latter class twenty-two years.

The deaths in the different districts of London, vary from one in nineteen in St. Olave's, to one in fifty-six in Hackney, owing, in great measure, to the greater proportion of poverty and crowded streets and houses in one than in the other.

It would have been more satisfactory and conclusive, if, in addition to these consequences of improper management of the dead and churchyards, Mr. Chadwick could have ascertained, more extensively, the sanatary condition of all the people who live within reach of the malaria of burial grounds, or drink the waters that come partially or entirely through these depositories of human flesh. But he has brought forth facts enough to give us fair warning of the evils that follow from these exposures.

Mr. Chadwick has described, in detail, many of the funeral customs among the poor, and the bearing of these upon their moral and pecuniary condition. We have only space to glance at these.

The costs of funerals in London and other towns of England are very great. In many cases they seem to us enormous; and upon the poor they bear heavily. Beside the necessary expense for the purchase of the privilege of burial, and the digging of the grave, the carrying and depositing the body in the earth, custom demands many other expenditures which the friends cannot resist. An ordinary funeral, in the middling classes, will cost 250 to 300 dollars; in the labouring classes, 20 to 25 dollars. A clergyman was buried for $532; a person of the condition of an attorney for $300 to $500. A gentleman for $1000 and upwards. Tradesmen of the better class for $350 to $500; average tradesmen for $300. Persons of rank for $2,500 to $7,500.*

* It may seem strange to us how so much money could be expended for the funeral service. We copy this bill of an undertaker from Mr. Chadwick's report, p. 267.

	£	*s.*	*d.*
Elm coffin, lined, ruffled, mattress, sheet and pillow, - - -	3	11	0
Leaden coffin, plate of inscription: 5 men with do., - - - -	6	15	0
Outside case, brass engraved plate, 5 men with do., and making up,	9	9	6
Pall, 7*s.* 6*d.*; 2 porters, scarfs, staves, covers, bands and gloves, 38*s.*,	2	5	6
Four gentlemen's crape scarfs, bands and gloves, - - - -	6	12	0
Seventeen silk " " " - - - -	41	5	0
Hearse, four horses, feathers and velvets for ditto, - - - -	5	16	0
Five coaches, pairs, " " " - - - -	9	15	0
Six coach cloaks, bands and gloves, 60*s.*; truncheons and wands, 6*s.*,	3	6	0
Eighteen pages and bearers, silk bands and gloves, - - -	11	14	0
Attending and assistance, 63*s.*; scarf, band and gloves for minister, 55*s.*,	5	18	0
Hat band and gloves for clerk and rector, 30*s.*, grave-digger, &c., 3*s.* 6*d.*,	1	14	6
Paid vault dues, £4 12*s.* 6*d.*; letters 20*s.*, fetching company, 4*s.* 6*d.*, -	5	17	0
Two crape bands and gloves for servants, 20*s.*; 8 silk do. do., 53*s.*,	6	0	0
Thirty-four men's allowance, 28*s.*, - - - - - - - -	1	8	0
	£121	5	6

In another bill is a charge for 6 ladies' hoods, for lid of feathers, for bell and searchers, for dues at church, &c., &c.

In the bill for the burial of ——— Esq., are charges for wool bed, 10*s.* 6*d.*; 6 silk scarfs, hat bands and gloves for clergyman, £13 16*s.* Hat bands and gloves for two porters, for men carrying the ostrich feathers, for 3 coachmen, for 8 hearse pages, 6 coach pages, for clerk at the ground, four servants of carriages; terrace beadle, man servant, and for others not specified, and for Mr. Owen, amounting to £28 15*s.* 8*d.*; for hat bands and gloves. The cemetery dues are £22 7*s.* 6*d.*, and the whole cost of the funeral £130 16*s.*, or about $650. Mourning coaches, with feathers, velvets and hammer cloths, pages and wands, are among these items.

In Scotland the cost of burial in the middling classes is $60 to $125. The proximate estimate of the expense for the total number of funerals in England and Wales in one year is $24,357,465. The sum for the metropolis is $3,133,000.

Oppression and extortion seem to have taken advantage of these mournful occasions, when the survivors are too absorbed in grief to attend to the details, and too heart-broken to resist the cost of any material or service rendered the dead. The poor often find it difficult to raise the money required; and the funeral is sometimes delayed for this purpose. There are, it appears, Shylocks of the graveyard as well as of the exchange; but they demand their money before they will take their pound of flesh.

Burial-clubs are common in some of the cities of England. These are merely a sort of safety-fund or life-assurance *association*, being limited in their object to the burial of the members who are thus insured. They are supported by small and periodical deposits, according to the age of the person, and the style in which his or her funeral is to be performed. Some provident societies and savings institutions receive deposits for this purpose.

There are about two hundred of these burial-clubs in Westminster, Mary-le-bone, Finsbury, Tower Hamlets, and the old city of London, confined to the labouring classes chiefly. In the city of Preston, with 53,000 inhabitants, 30,000 are associated in these clubs. There are similar associations among the higher classes, who thus secure sometimes as much as £200 for the expenses of their burial.

Some of these clubs pay all the cemetery and funeral expenses: all the bills of the grave-digger, undertakers, upholsterers, coffin-maker, &c. Other societies undertake the whole conduct of the funeral, and the responsibility of the burial; they supply all the materials, and procure all the service and labour required. In some cases, the members of the club attend as mourners.

"The burial-clubs of the labouring classes are generally got up by an undertaker and a publican, at whose house the club is held." This is a mere speculation, by which the interested parties get the subscribers to pay in advance, and in small sums, for the service, which they agree to render back to them after their death. These men furnish every thing, grave-digger, coffin and shroud, bearers, coaches, and even clergymen, all for the sum agreed upon in life.

It is not unfrequent for persons to enter themselves or their children in more than one burial-club, which pays definite sums for this purpose, in order to secure a large amount of money at death. This has been the cause of cruel neglect, and even of murder, on the part of parents or guardians of children so insured. One child in Manchester was rumoured to have been starved to death; on examination by public authority, gross neglect was proved. "The child had been entered in ten burial-clubs, and its parents had six other children, who only lived from nine to eighteen months respectively." No crime could be fixed upon the father, and he recovered £34 3*s.* from all these clubs. He had received £20 for another dead child before this as a premium for his negligence.*

Some cases of direct infanticide were detected. One man was convicted of and punished for poisoning his three children with arsenic, for

* "They often say—*You are not treating that child properly; it will not live; is it in the club?*"—Report, p. 64.

no other purpose than to gain the burial-fees from the clubs. Many impostures connected with this burial-insurance were discovered—such as the borrowing a dead child, which had not been insured, and palming it off upon the insurers as the one which had been entered. One man got his own burial insured for £50, and then committed suicide, directing his family to receive the money, and to bury him cheaply.

"Notwithstanding the immense sacrifices made by the labouring classes for the purpose, neither they nor the middling classes obtain a solemn and respectful interment; nor does it appear practicable that they should obtain it by any arrangement of the present parochial means of interment in crowded districts."—p. 79.

The respect for the remains of the dead, and the solemn conduct of the funeral are among the dearest sentiments of surviving friends, and should be cherished by all. But these are grossly and cruelly disregarded in these speculation-burials; and even in many of the parochial funerals, they are neglected. The busy and the idle crowd seem to pay no respect to the mourning procession; carriages drive through it—rude boys insult it—and even the burial-service at the churchyard or chapel is sometimes interrupted by vulgar adults calling out to the clergyman, "*Read out, old fellow.*"

"It is a frequent thing that the grave-digger, who smells strongly of liquor, will ask of the widows or mourners for something to drink, and, if not given, he will follow them to the gates, and outside of the gates, murmuring and uttering reproaches."—p. 81.

The parochial interments do not appear to be much more satisfactorily conducted. The burial-service of these is to be performed by the clergyman, the incumbent or the curate. The parish of Christ Church, Spitalfields, has "one burial-ground," and one church attached to that burial ground, and "an *interrable* population of 23,642." It is not to be wondered at that the rector, Rev. William Stone, "finds an extreme inconvenience in this part of his duties." The funeral service is performed for a fee in the chapel, and for less cost out of doors. Sunday being the day preferred for this occasion, often the processions crowd thickly upon each other. Fifteen funerals have been appointed at the same hour and place, and a single clergyman to officiate for all. "Burials *in* church clash with those *out* of it." "Mourners are kept waiting in a cold, damp burial-ground." Whatever may be the weather, these must wait until their turn comes to be served. Then the service is hurried and unsatisfactory to all parties—to the minister, to the mourners, and to the people.

All these evils; the location of the burial-grounds in the midst of the living, and their crowded condition; the frequent disturbance of the dead by re-digging their graves for new occupants, the oppressive expenses of and the abuses connected with the whole burial-service, and the burial-insurance; the want of due solemnity in the funeral, and of due respect for the feelings of the mourners: all these call loudly for redress, and Mr. Chadwick proposes a plan for their removal.

He says, that "the practice of interment in towns, in burial-places amidst the habitations of the living, and the practice of interment in churches, ought, for the future, and without any exceptions of places or exception of persons, to be entirely prohibited.—p. 199.

"That the necessities of no class of population in respect to burial ought to be abandoned as sources of private emolument to commercial associations, but that national cemeteries of suitable description ought to be provided, and main-

tained (as to the material arrangements) under the direction of officers duly qualified for the care of the public health.

"That houses for the immediate reception, and respectful and appropriate care of the dead, under superior and responsible officers, should be provided, in every town, for the use of all classes.

"That provision should be made, by the officers having charge of the national cemeteries, for the supply of requisite materials and services—securing to all classes, especially the poor, the means of a respectable interment, at reduced prices, suitable to the station of the deceased, and the condition of the survivors.

"That for these purposes, and for carrying out the physical arrangements necessary for the protection of the public health, in respect to the practice of interment, officers of health, qualified by medical education and special knowledge, should be appointed.

"That no interment be allowed without the verification of the fact and cause of death by the officer of health.

"That in all cases of death from removable causes of disease, the officers have power for the removal of these causes, and the protection of strangers from exposure."—p. 199, 200.

Such an officer is to visit every house of mourning, however poor or rich, and ascertain the name, age and occupation of the deceased, and all the circumstances of death—to give advice and aid as may be needed—to take the place of churchwardens, overseers, and all who now have the charge of burials. He is to provide undertakers, sextons, bearers, and all assistants who are needed for this solemn service. These are to be under his control, and responsible to him for their performance of duty. "It is proposed that the last medical attendant of the deceased should, on a small payment, be required to give immediate notice of the death" to this officer; or, if there were no such attendant, then the occupant of the house, or the one who has charge of the body, should give this notice.

This health officer must make a post-mortem examination if the case require it. He must notify the prosecuting officers if there be any suspicion of criminality connected with the death.

Where sickness remains in the family, or epidemic diseases prevail, the body is to be removed to the house of reception under the charge of a public officer, and kept there until the family are ready for the burial.

Coffins of all sorts and sizes are to be kept by this officer ready to meet every emergency, and for such bodies as are already in a state of decay—they may be made impervious to water or gas "by coating the interior over with a cement composed of lime, sand and oil."

One of the greatest advantages resulting from the investigations of this health officer, and the publication of his register, is the discovery of the prevalence of malaria or of epidemics, which could not otherwise be done. One registrar testifies,—

"I find that neither my experience as a medical officer, for many years in the parish, nor my experience as a private practitioner, gives me the same extended view of the causes of death as the mortuary registration. It brings to my knowledge cases which I could not know as a private practitioner—for example, the occurrence of small-pox or epidemics."—p. 179.

Sometimes the causes of disease or the origin of malaria may be very obscure; but the examination of many cases, or of all, that occur in one locality will lead to the detection of some fact or circumstance which may be common to and connected with the whole. This officer is to be empowered to remove, at once, any case of fever or infectious disease from any crowded situation, and even, if need be, to remove from the infected premises all

the inhabitants; and, if any local cause of the infection be found, he must give notice of such facts to the officers who have charge of the drains and streets, who shall immediately cleanse, purify, and lime-wash them as the case may require before they are permitted to be re-occupied.

The officer who has these duties to perform must be a physician or surgeon, but not in private practice. He must be a man of firmness but of bland manners, so that he do his duty faithfully, without offending the sensibilities of the afflicted families, and overcome their prejudices against the presence of a stranger in the scene of their sorrow. He must be a skilful pathologist in order to detect readily any morbid appearances, and all facts or matters that may have interfered with health, and be able to make such deductions from his discoveries as will enable others to avoid the causes of disease.

Mr. Chadwick proposes to give the principal inspector of public health the rank and salary which are given to an inspector-general of hospitals in the army, that is £1 15*s.* per day, amounting to $3,100 a year. A deputy is to receive about $2,100 a year. Other officers to receive somewhat less. Twelve of these officers are supposed to be sufficient for the metropolis.

By these means Mr. Chadwick supposes that the expenses of the burials in London, which now are between six and seven hundred thousand pounds, would be reduced more than one half. This detection and removal of the sources of malaria would prevent the farther spread of many of the endemic, epidemic and contagious diseases which now carry off more than eight thousand annually from London alone.*

This cost of prevention is much more than counterbalanced by the saving of the expense of funerals. It is stated as a remarkable fact, that

> "In Liverpool alone, in the business of cure and alleviation, there are engaged fifty physicians, two hundred and fifty surgeons, apothecaries and druggists, and not one responsible public officer to investigate the causes of disease with a view to prevention; nor has the city of London one such officer, though it has an expenditure of £72,000 per annum in hospitals and endowed medical charities alone for the alleviation of disease."—p. 189.

If Mr. Chadwick's plans are adopted and carried into execution, the poor will be protected from the evils consequent upon long detention of the corpse in their houses, from exorbitant funeral charges, and many useless and oppressive burial customs; and from all discoverable and removable causes of disease. They will have the consolation of knowing that the bodies of their deceased friends will sleep for ever where they are once deposited, and that the spot may be permanently marked by any monument of respect or token of affection.

The public in general will be protected from the miasmata which emanate from the churchyards in their midst, and their wells would no more be tainted with the exudations that flow from the graves.

With these conclusions the plan of Mr. Chadwick is earnestly recommended to her majesty's government and Parliament for adoption, and to the world for consideration. We wish him success in his undertakings.

This book has a prospective interest for us in America. We are not yet in the state of suffering or danger as are the citizens of London. Yet we may be advancing toward their condition. The occupants of our cities—

* Deaths from these causes in the metropolis in 1840, 8,361; in 1841, 9,588. In England and Wales in 1840, 65,353; in 1841, 76,064.—*Registrar-General's 3d & 4th Reports.*

the living and the dead—may be gathering in denser crowds than health allows; and, in as far as we permit the putrefactions of the body to take place in our midst, to however small extent, we are violating those plain laws of life which require the air we breathe and the water we drink to be free, not only from all noxious intermixtures, but from all foreign ingredients whatever.

We may take warning from these old cities and avoid their errors. We may take advantage of the plans which have been adopted in Germany, where this whole subject has been thoroughly investigated, especially at Frankfort and Munich. With a slight abstract of the burial regulations of Frankfort we close our article. These were adopted in 1829.

A new cemetery was established out of the town, and all interments within it were abolished at the same time.

A house is established for the reception and custody of bodies after death and before burial.

The mixed church and *school* commission have the control of all interments and cemeteries, and of all officers, superintendents, commissaries, inspectors, and servants connected with these establishments or rites.

Commissaries of interments are substituted for undertakers. These arrange every thing connected with the funeral, and are responsible to the commission.

Bearers are appointed by the commission, and attend all of every rank to the grave.

Four classes of funerals are determined by the law, and a family may select either by paying the requisite fee.

Friends may attend in carriages, but not at the cost of the mourning family.

No burial can take place until after the lapse of three nights, unless the physician certify that decomposition has commenced.

The cemetery is surveyed and prepared, and all the graves are numbered and marked on a plan which is drawn on the ground.

The clerk of the commission records the name, age, and rank of the deceased, and the number of his grave.

No grave is to be re-opened in less than twenty years.

The cemetery inspector is examined and approved by the Sanatary Board, and has immediate charge of the cemetery and all funerals.

All persons employed in the cemetery solemnities, or in the house of mourning, shall appear in good black clothes.

The sextons and gardeners to restore the neatness of the paths, borders, and flowers immediately after they have been disturbed by burial.

The inspector to be notified, in writing, by the commissary of any interment—otherwise no grave can be opened.

The inspector must be present at all burials, and see that every thing is done with dignity and solemnity.

He must inspect all family vaults, and keep a record of all needed repairs, and notify the commission of the same.

"It is the duty of the inspector to treat all who have to apply to him with politeness and respect, and to give the required information unweariedly with good-will."—p. 207.

The interment commission is elected from the Catholic, Lutheran and Reformed churches, and have charge of all funerals within their respec-

tive districts or communities. The family notifies the commissary of any death, who notifies the commission, and receives an interment certificate.

Graves to be dug seven feet long and three and a half wide, and five deep for adults, and a foot of space between them.

All the officers are subordinate, none fixed, and sufficient salaries, and are on no occasion whatever to receive any fee or gratuity in money, food, crape, gloves, under the severest penalties, and all persons are forbidden to give any of these matters to any person connected with the funeral or cemetery service.

The whole cost of funeral and burial is fixed by law in four classes. For adults, 1st class, $22. 2d. $15,75. 3d. $9,75. 4th. $6,56. The fee for children and youth in each class is reduced.

The house of reception is, "to give perfect security against the danger of premature interment," and "to offer a respectable place for the reception of the dead, in order to remove the corpse from the confined dwellings of the survivors."—p. 212.

The use of this house is voluntary, unless the physician thinks it necessary for the safety of the family.

The body may be removed within six to twenty-four hours after death.

When the thermometer is at 30° Fahr. there must be unequivocal signs of death, and the certificate of the physician to that effect.

The inspector of the burial-ground is also inspector of the house of reception. He must have the requisite medical and surgical knowledge.

In the house of reception are rooms for the dead, a bath room, an animating room, and a kitchen.

In the animating room is a bed, all the means of resuscitation, and warmth and ventilation.

The body is placed on a table, with a string in the hand, attached to a bell, so that the slightest motion gives notice to the watch. If any sign of reanimation be perceived, the body is at once removed to the animating chamber, and means of restoration applied by the inspector.

Friends can visit the body by leave of the inspector, and when it is consistent with their health.

No pay whatever can be received by any of the officers or servants of this house.

If any roughness be shown to the dead the offender is dismissed, and tobacco is prohibited in the house.

Tenderness toward the living and the dead—politeness and courtesy to all and each other are required of all the officers and assistants connected with the whole of this burial establishment.

This is a meagre abstract of some of the regulations for public interment at Frankfort. We commend the whole, in detail, to the attention of the municipal authorities of all our towns and cities.

E. J.

BIBLIOGRAPHICAL NOTICES.

ART. XII.—1. *The twentieth Annual Report of the Officers of the Retreat for the Insane at Hartford.* 1844: pp. 32.

2. *Eighth Annual Report of the Physician and Superintendent of the Vermont Asylum for the Insane.* 1844.

3. *Report of the Superintendent of the Boston Lunatic Hospital, and Physician of the Public Institutions of South Boston.* July 1, 1844: pp. 22.

1. THE report now before us is the first that has emanated from the pen of Dr. Butler since his connection with the Hartford Retreat. It is a sensible and manly document, bearing evidence of its author's interest in the welfare of the insane, and of his practical knowledge of their proper treatment. The statistics of the Retreat for the past year are as follows:—

	Men.	Women.	Total.
Patients at the commencement of the year,	46	43	89
" admitted during the year,	51	29	80
" whole number "	97	72	169
" discharged recovered,	26	18	44
" not recovered,	19	14	33
" died,	5	4	9
" remaining at the end of the year,	47	36	83

Of the whole number, 61 males and 38 females were unmarried, 33 males and 22 females married, and 3 males and 12 females widowed.

The number of admissions into the asylum since its opening, in 1824, is 1327. Whole number of cures, 746, deaths, 92.

We quote from the report the two following paragraphs, believing them to express the unanimous opinion of physicians connected with institutions for the insane.

"It is only in Lunatic Hospitals that the course of treatment indicated by an intelligent consideration of the different phases of insanity can be applied. No where else can the varied forms of occupation, recreation and amusement be so successfully carried out; no where else can the same amount of indulgence be safely granted. It is here alone that beneficial results can be reasonably expected. Elsewhere the consequences will vary according to the character of the cases. Generally one of two results ensues—the mind, left to itself, dwells with increasing intensity upon the diseased train of thought, until excitement, growing by its own indulgence, overcomes the vestiges of reason, and the sufferer becomes an ungovernable maniac, or, weakened by the shock which disease has inflicted upon the system, gradually loses its power, and sinks into a state of torpidity or childishness."

The following remarks were suggested by the too common practice of removing patients from the institution before they have had time to receive the full benefit of treatment.

"It would be far happier for the insane if their friends would reason as correctly in this as in other diseases. The reunion of the fractured bone does not authorize the immediate removal of the splints and bandages, nor the free use of the limb; the crisis of an attack of fever or inflammation does not justify the instant omission of remedies, the neglect of the precautionary treatment of convalescence, the unguarded indulgence of appetite, or the dismissal of professional oversight and advice. Now the brain is amenable to the same natural laws as other parts of the human frame, and insanity is neither a demoniacal

possession nor an abstract excitement of intellect; but it is as truly a physical disease as fever or rheumatism."

"The records of the Retreat present some melancholy evidences, in the history of returned and incurable cases, of the evils resulting from violations of these self-evident propositions."

2. The Vermont Asylum for the Insane has been enlarged, during the past year, by the addition of about sixty rooms. The arrangements are now such that the patients of each sex can be divided into six distinct classes, a "consummation to be wished," in every institution of the kind. The "Asylum Journal" is still published, and, in exchange for it, more than two hundred newspapers are received. According to the statement of Dr. Rockwell, these have superseded the books in the library; a change, of the utility of which, there might be some difference of opinion.

Statistics of the Asylum during the past year.

Patients at the commencement of the year,	136
" admitted during the year,	96
Whole number during the year,	232
Discharged and died,	74
Remaining at the end of the year,	158
Of those discharged there were, recovered,	51
" " " not recovered,	16
" " " died,	7

Dr. Rockwell's reports are always brief but comprehensive.

3. The nature of the Asylum for the Insane, the report of which is before us, is such as entirely to preclude the possibility that it should become an eminently curative institution. The patients sent there "are those labouring under *chronic* mania, dementia or melancholy; none with *acute* mania or the furiously mad being admitted." And again, "The advantage possessed by other asylums, not (exclusively) pauper, of being able to send their incurable patients to their friends, or return them to the Almshouses or the Houses of Correction of the towns or counties from which they came, does not attach to this Hospital. Here, the incurable must remain till the friends, if the sufferer have such, remove him, or, what is more often the case, till death closes the scene."

"Since the last annual report was presented," says Dr. Stedman, "a bathing-house has been erected. It is situated just within the sea-wall, where the tide ebbs and flows uninterruptedly by, and has an area of fifty by twenty-five feet, affording a fine space for swimming. The house covers one-third of this space, and is fitted up with every convenience for cold sea bathing, and in such a manner that the patients of each sex can be accommodated equally well."

	Males.	Females.	Total.
No. of patients admitted during the year,	15	14	29
" " discharged and died,	15	14	29
" " discharged cured,	5	4	9
" " died,	2	3	5

Average number during the year,	105
Whole number admitted since opening, 4 years 7 months,	288
" " discharged and died,	180
" " remaining,	108

P. E.

ART. XIII.—1. *Reports of the state of the Kent County Lunatic Asylum*, for 1842 and 1843.

2. *Statements of the Visiting Committee of the County Lunatic Asylum, near Gloucester*, for 1842 and 1843.

3. *The Report of the Committee of Visitors of the Lunatic Asylum for the County of Leicester*, January, 1842.

4. *Thirty-third Annual Report of the General Lunatic Asylum, near Nottingham*, September, 1843.

5. *Reports of the Medical Officers of the Lunatic Asylum for the County of Lancaster*, for 1841, 1842 and 1844.

6. *Fifty-ninth, Sixty-fourth and Sixty-eighth Reports of the Visiting Justices of the County Lunatic Asylum, at Hanwell, including the Annual Reports of the Physician*, for 1841, 1842 and 1843.

THE first four institutions above-mentioned still adhere to the old method of publishing their annual reports upon a single sheet, and the amount of matter therein contained is necessarily comparatively small. The reports of the Lancaster Asylum, and that of Middlesex, at Hanwell, are beautifully printed in pamphlet form, octavo, and are sufficiently voluminous, as well as minute in details.

The following table, compiled from the several reports before us, exhibits the results of treatment in the respective institutions, from the time they were first opened for the reception of patients:—

Asylum.	Time.	Admitted.			Discharged cured.			Died.			Remaining.		
		Males.	Females.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
Kent,	From January 1, 1837, to December 31, 1843,	382	303	685	104	63	167	144	62	206	108	141	249
Gloucester,	From ——— —, ——, to December 31, 1843,	827	725	1552	–	–	852	–	–	178	122	134	256
Leicester,	From January 1, 1837, to December 31, 1841,	–	–	337	–	–	141	–	–	42	–	–	105
Nottingham,	From February 12, 1812, to June 30, 1843,	765	604	1369									
"	Readmissions, - - - -	172	122	294									
"	Total, - - - - - - -	937	726	1663	407	359	766	151	68	219	76	83	159
Lancaster,	From July 28, 1816, to June 23, 1844,	2265	1825	4090	893	804	1697	928	612	1540	299	300	599
Hanwell,	From October 1, 1830, to September 30, 1843,	1279	1309	2588	307	296	603	493	405	898	412	563	975

Improvement is, emphatically, the watchword at the institutions for the insane in Great Britain. Parties, entertainments, &c., those prominent adjuvants in the moral treatment, are becoming more frequent, and various methods are devised for the purpose of amusement, instruction and recreation, all apparently contributing to the contentment and the mental restoration of the patients. The report from Nottingham says, that the "parties and refreshments" have been "of decided benefit in a medical point of view;" and singing, conducted on the principle of Wilhem, "has proved a source of much amusement." At Gloucester, besides the "accustomed round of balls, evening parties," &c., singing, upon the Mainzerian system, has been introduced, and, in the words of the report, "of all the amusements calculated for a lunatic asylum, it is, perhaps, one of the best that could be devised." At Hanwell, where everything is conducted upon an extensive scale, parties of 200, and even 300, assemble to amuse themselves with games, and to regale themselves with the luxuries of the land. Singing and dancing, "roast-beef and apple-pies," and, to cap the climax, "one pint of beer, some tobacco and a new pipe for each

patient desirous of smoking," such are some of the resources for mental and physical enjoyment at this asylum. A few days after one of the banquets, "a grave, elderly Scotch patient, who lays claim to titles and wealth, expressed a wish to the house surgeon, that he would give "those rebels, who slept in the same room with him, a supper every night; for that whereas they were usually singing and noisy, they were, on that particular night, perfectly quiet."

Since Dr. Conolly became connected with the Hanwell Asylum, schools have been established for the patients, in which reading, writing, geography, arithmetic and singing are taught by persons specially employed for that purpose. On the 21st September, 1842, one hundred and ten patients were in attendance at these schools. The results of this plan have been abundantly beneficial and satisfactory.

The following extract from the report of the Gloucester Asylum, for 1842, exhibits a new feature of "moral treatment:" "The system of introducing a limited number of students of each sex to an association with the patients of both sexes, and of employing females, more freely, to assist in the attendance upon the male patients, has been persevered in throughout the year, and has fully answered the expectations entertained. The patients being under the immediate direction of educated persons, instead of being left to the care of servants, have been manifestly more comfortable; and that state of irritation and disquietude so often observed among the inmates of an asylum, has been so generally removed, that the resident physician has formed the first-class patients, of both sexes, together with the students and the members of his own family, into one domestic party, and they daily assemble, for meals and for amusement, in one or other of their respective apartments."

But a more important subject than any to which we have alluded, still awaits our attention. We refer to the *entire abolition or disuse of mechanical restraints upon the persons of patients confined in lunatic asylums.* It must be confessed that, after a perusal of some of these reports, we became convinced that, in regard to this subject, some of the British institutions are in advance of any in the United States, the phrase "in advance" being used on the supposition (for the proposition is far from being demonstrated to the satisfaction of all) that the entire disuse of mechanical restraints is possible, proper and the most conducive to the true interests of the insane. As this subject is of great importance in a practical, as well as in a humane point of view, as there is a diversity of sentiment upon it in Great Britain, and as it has but barely been broached in the United States, it is worth our while to look a little into it, and to give the advocates of the system of non-restraint a fair hearing.

It appears that the system was originated at the Lincoln Asylum, England, where, "after many difficulties," it "seems at length to be completely established." In the report of the Gloucester Asylum for 1842, the officers of that institution say, "All mechanical restrictions upon the persons of the patients have continued to be disused during this year: the state of the house has, in its quietness and tranquillity, warranted this; and although occasional violence on the part of patients has, as formerly, occurred, a more judicious appeal to the moral instead of the physical powers of the attendants—a removal of the excited from the society of his comrades—or, a more complete seclusion in a well-guarded chamber, have been found to subdue the violence, when mechanically confining the limbs would only have increased the irritation."

The Lancaster Asylum, one of the largest institutions of the kind in England, was among the first to adopt the measures commenced at Lincoln; and, from the following extract from the report for 1841, no one will hesitate to acknowledge that some amelioration, if not all that was attempted, would be consonant with the spirit of humanity.

"From the opening of this asylum, in 1816, mechanical restraint appears to have been extensively employed; and at the time your officers took charge, they found twenty-nine persons wearing either hand-cuffs, leg-locks or strait-waistcoats—exclusive of between thirty and forty patients who were chained down, during the day-time, on seats so constructed as to answer all the purposes of water-closets, in rooms known by the appellation of "the warm

rooms;" moreover, during the night-time, all the epileptic and violent patients were chained, or otherwise secured, in bed. It was also an established custom "to place every case, on admission, under restraint during the night-time, for a longer or shorter period, as might appear expedient."

With this scene of moral deformity before them, the officers, as the report proceeds to relate, "at once determined gradually to abolish every species of mechanical restraint, and they have great gratification in stating, that now for upwards of five months, not a single patient has been so restrained. In all cases of violent excitement, if gentle persuasion fails in subduing the irritability of the patient's mind, he is removed, as carefully and mildly as possible, to his own room, where he is left alone, or, if circumstances require it, to a room into which is admitted a subdued light, and so constructed and prepared that he cannot injure himself."

In the report of the same asylum for 1842, it is stated that the system of non-restraint is still steadily adhered to in this institution, and no case has occurred, during the last seventeen months, where the medical officers have had recourse to any of the ordinary modes of mechanical coercion; and the same officers "bear a cheerful and willing testimony to the great advantages" of the system. Two years afterwards, in the report for 1844, they write as follows:

"The system of moral management and control, in contradistinction to mechanical restraint and coercion, is strictly adhered to; and since first adopted, it has only once been found necessary to depart from it, and that in the case of a very violent and uncontrollable epileptic patient, who had got an impression that the medical officers durst not have recourse to any coercive measures, such as were formerly in constant use, no matter how outrageous his conduct. This patient was placed under restraint for six hours, with the best effects as regarded himself, and with great advantage to several parties in his gallery, who had, through his instrumentality, shown symptoms of great insubordination."

The officers, under whose supervision and by whose direction this revolution in the government of the Lancaster Asylum was made, are Edward D. De Vitré, M. D., Physician, and Samuel Gaskill, surgeon. They merit the meed of praise due to all practical philanthropists, even on the assumption that, like many other reformers in their righteous avoidance of one extreme, they may have gone to its opposite.

Dr. Conolly, than whose mind, perhaps, no stronger is at the present time bestowing its energies upon the medico-moral treatment of the insane, commenced his career at the Hanwell Asylum with the determination to carry out, *in extenso*, the system of non-restraint in that immense institution. He met with no inconsiderable opposition to the prosecution of his plan, from some of the officers with whom he was associated. In his report for 1841, he thus speaks of these difficulties, and of the progress made in the introduction of the system.

"In October, 1840, after a year's experience made in circumstances, some of which were singularly unfavourable to the success of the trial, he (himself) felt himself justified in announcing its probable success. Another year has now passed, and the experiment has, for a part of this year, been conducted by a united household. From the moment of this union of purpose among the officers and attendants, the obstacles besetting the experiment have diminished; accidents and assaults have become less frequent, and the general tranquillity and order of the asylum have increased. However unpleasant the recollection of the state of the asylum may be at the time of the commencement of the change of system, it affords the important knowledge that confusion among the patients, is the concomitant of unfaithfulness in those on whose exertions the superintendent must depend, and the preservation of discipline easy, when those, whose office it is to preserve it, are zealous and sincere. Every successive month appears to add to these encouraging effects; the attendants daily acquiring a clearer appreciation of a system from which violence of every kind is excluded."

Again, "patients liable to attacks of mania, in a house where restraints are much employed, regard the accession of an attack with terror; but it is quite possible to screen them from every danger without restraint. The indignation

of those upon whom restraints were forcibly imposed; their eloquent exposition of its degrading and maddening effects; their fierceness when running about the wards in a strait-waistcoat; the alarm and discontent their presence occasioned to other patients; their speechless joy, their sobs and tears, when unexpectedly liberated, when both in seclusion and restraint, in the midst of a paroxysm of reproaches prolonged until they were covered with perspiration, and their lips were literally covered with foam—are things of which the memory can never be effaced from the mind; and they make the ear deaf to specious representations of the comfort of straps and strait-waistcoats. When these results are contrasted with those of simple seclusion; when the angriness, the ferocity and sullenness, characteristic of some of the wards in which restraints were habitually employed, (as in the epileptic wards,) are compared with the present indications of confidence and general good temper, the firm impression left is, that the general bad effects of restraint, and its liability to abuse, are immeasurably more pernicious than any thing that can be occasioned by its discontinuance."

In his report for 1842, he thus continues to bear testimony to the beneficial influence of the system. "The resident physician has now but the agreeable task of recording, that time and patience, and the zealous co-operation of all the officers of the asylum, have enabled him to overcome many obstacles, and have confirmed him in the belief, at first encouraged with much diffidence, *but now established beyond the likelihood of ever being overthrown*, that the management of a large asylum is not only practicable without the application of bodily coercion to the patients, but that, after the total disuse of such a method of control, the whole character of an asylum undergoes a gradual and beneficial change. The results are daily developing themselves to all daily observers, and can scarcely yet be fully known and appreciated; but every year is affording new and satisfactory proofs that the principles are not dangerous or delusive, but founded in reason, and fertile in advantages."

Finally, in the report for 1843, Dr. C. says: "The whole experience of the last twelve months, has fully confirmed the impression made in the years preceding, that, by the abolition of physical restraints, the general management of the insane has been freed from many difficulties, and their recovery, in various degrees, greatly promoted."

Thus far the evidence of Dr. Conolly. Other extracts upon the subject might be made from his interesting and somewhat voluminous reports, but these are sufficient for our purpose. Let us consider now what others state in relation to this subject. The "visiting justices" of the Hanwell asylum, in their report for 1841, hold the following language:

"At the Michaelmas Quarter Sessions of the last year, a question arose as to whether the system which had been adopted by the resident physician of the asylum at Hanwell, and had been sanctioned by the visiting justices, had not been carried out in too rash and unqualified a manner to be perfectly safe. Such were the conflicting opinions entertained upon this question, by intelligent men, that it was then resolved, by the magistrates assembled, to intrust the control of the asylum to the same visiting justices for another year, and to postpone any decision upon the subject, if a decision might be necessary, until the court could have the benefit of a longer experience, and the more matured judgment of its committee."

After the additional "experience" required, the visiting justices write as follows.

"The points upon which the visiting justices have specially to report, are, whether, in the management of the patients at Hanwell, the mechanical means heretofore employed in restraining violence, or in preventing accidents, can be altogether dispensed with without great danger to the insane or to their attendants; and whether there may not be more of actual cruelty, hidden under the show of humanity, in the system of non-coercion, than was openly displayed in muffs, strait-waistcoats, leg-locks and coercion-chairs." * * * *

"Do the means which are now adopted at Hanwell, offer an equal security (with the old system) against the dangers to which every institution, and espe-

cially every large institution for the insane is liable? Are they sufficient to guard, not with absolute certainty, but with reasonable hope, against danger, equal at least to the mode of management for which it has been substituted? *The visiting justices beg to answer distinctly in the affirmative*, and to state as the result of their experience, that notwithstanding the many obstacles with which the non-restraint system has had to struggle, notwithstanding the difficulties which have unavoidably attended the transition from one system to another; notwithstanding all these, and even more than these obstacles, by which the means have been materially weakened that were relied on for complete success, that success has fully equaled their hopes, and has presented advantages which, in their opinion, more than compensate the imperfections to which every human contrivance is liable." * * * * * * * * * *

"It has been supposed that there is actually more of cruelty in this system, under the guise of humanity, than in that which was partly carried on by instruments of coercion. To this the visiting justices would beg, in reply, to say, that they can detect no grounds for so serious an imputation. If it had altogether failed, and by its failure entailed unnecessary suffering upon the patient, then, indeed, it might possibly be open to such a charge. But such is not the case. It has not failed, but has succeeded; and the visiting justices have one of the best proofs of its success in the testimonies of the patients themselves, when they are restored to health, and are fully alive to the comforts and advantages which they have enjoyed under it."

In their report for 1842, the same authorities say: "Your committee deem it no longer necessary to impress upon the court the wisdom and value of the Hanwell system of the treatment of the insane." In 1843, their report commences as follows. "The visiting justices have the satisfaction to find that every year, as the excellence of the non-restraint system becomes more generally recognized, it affords fewer materials in the asylum for comment or report. For four years it has been the settled rule of the house, that no harshness or coercive cruelty should be used in any case, but that every patient, however violent, should be treated with uniform kindness and forbearance; and during that time such has been the undeviating success of this plan, such has been the even tenor of its course, that it now presents no new facts or features either to vindicate or explain."

The important question of the utility of the system under discussion, being thus definitely settled, it were useless to make farther extracts confirmatory thereof. If, then, all mechanical restraints, directly applied to the body or the limbs of the insane, are to be entirely, and under all circumstances abolished, by what means is the object attained for which those restraints were invented? Raving maniacs are alike in all countries, at least in one point, in that for their proper management, having in view their own good, and the safety of the persons and property of others, some means of restraint or curtailment of liberty is essentially necessary.

The resources of the system of anti-coercion, as we learn from the reports before us, are *moral suasion; garments made of strong materials; the holding, by an attendant, of the body or limbs; padded rooms; windows shielded by wire screens; seclusion and the shower-bath.*

In the report of the visiting justices of the Hanwell Asylum, for 1841, they state, that in consequence of the introduction of the new system, "the breakage of glass in 1840, more than doubled that of 1839. In the latter year it was nine crates of glass, and in the former it mounted up to two-and-twenty. In the course of the present year wire-work guards have been fixed to the windows, and these promise to be much more effectual than the means which were formerly in use."

Again, in the same report, while treating upon the means of the non-coercive system, they say, "As a last resort, and, as it has proved, an effectual one, the patient is placed, with the least possible violence, in seclusion. In some instances, it is true, the shower-bath may be required as a medical [?] remedy; but seclusion in a room, in ordinary cases, has been found, and usually in a short time, to produce the desired effect."

We have placed a note of interrogation after the word "medical," querying, in our own mind, why the visiting justices should have found it relevant to the subject to speak of the shower-bath in this connection, it being used, according to them, as a *medical* agent, whereas it was the *moral* treatment alone that was under discussion.

The subjoined extract is taken from the "general duties" of the attendants at Hanwell, in the report last mentioned.

"When it is necessary to seclude, remove or give a bath to a refractory patient, or to dress or undress those who strongly resist, the attendants should not be fewer than four or even six. This will prevent a dangerous struggle. The attendants must promptly render the violent patient unable to strike or kick, by seizing the hands or the feet. The patient may then be quickly and quietly removed to the bath, or into a single room, or dressed or undressed without injury to any party."

From the "directions for the regulations of the conduct of the attendants in the performance of their duties," at the Lancaster Asylum, contained in the report of that institution for 1841, we make the following extract. "It should always be kept in mind, that every thing is done for the benefit or improvement of the patients, and *not in the way of punishment*. On this account, *when the shower-bath is used with a view to correction*, the patient must be brought to it mildly and firmly, but with no taunts or irritating expressions."

Now it appears to us that the visiting justices have been driven to adopt unusually nice philological distinctions, when they endeavour to explain the possibility of using the shower-bath "*with a view to correction*," yet "*not in the way of punishment*."

We have thus endeavoured to give a faithful, though brief exposition, or, rather, outline of the system, which, it is proposed, shall be substituted for that heretofore in vogue at asylums for the insane. The language of its advocates has been chiefly employed, that there might be no misrepresentation. Never having been a personal witness of the practical effects of the system, (although always advocating the disuse of physical restraints, so far as we believed was best for the true interest of the patients,) we are, of course, not properly qualified for the expression of an opinion thereupon. We know, however, that wire-screens are unsightly appendages to windows, and that seclusion is often considered, by the patient, as punishment; and we believe that restraint, by the hand of an attendant, is sometimes more irritating than that of muffs or wrist-bands; and that the shower-bath is, to some patients, an object of far greater terror than the ordinary means of corporeal restraint. But we have high authority in favour of the permanent utility of the new system, authority which we are not disposed to question or disparage, and the testimony of which was given after a somewhat prolonged experience. Such evidence is certainly worthy of respect and consideration.

At the risk of tediousness, we must refer to one point more connected with the subject in question. In their report for 1841, the visiting justices at Hanwell congratulate themselves that their opinions in regard to the excellence of the system, may "receive much additional value from the testimony of Mr. Samuel Tuke." The "testimony" here referred to, is then quoted as follows, from Mr. Tuke's introduction to Dr. Jacobi's work "On the Construction and Management of Hospitals for the Insane."

"The change which has taken place in all our asylums is truly encouraging, and who can visit or contemplate the establishment at Hanwell, containing eight hundred (now nine hundred and thirty) insane persons, governed without any personal restraint, without admiration and surprise? From the zeal, talents and integrity of Dr. Conolly, we shall doubtless learn, in the most satisfactory manner, the further result of this large and extraordinary experiment; and, in the mean time, the considerations which the proceedings at Lincoln and Hanwell have induced, as to whether, in our respective asylums, we may not safely and advantageously, at least, still further diminish the amount of personal restraint, is operating, and will continue to operate, very beneficially."

It sometimes happens that it is necessary to hear the whole evidence of a

witness, before it can be satisfactorily determined what bearing his testimony may have upon the question to which it relates. The extract just quoted occurs on the xxxv. page of the "introduction" aforementioned. On the two preceding pages, the xxxiii. and xxxiv., we read as follows.

"It is even asserted, that all mechanical means of restraint may be *entirely* and *advantageously* superseded in our asylums, by the exercise of moral influence. The very important experiments commenced at Lincoln, and now carrying on at Hanwell, *have not yet, I venture to say, quite determined the question in the affirmative.*

"I freely acknowledge the conviction, that there are cases in which, under the most favourable management, *we should best consult the feelings of the patient, as well as the comfort of his companions, by the application of mechanical means of restraint.* Certainly there are cases in which the patient solicits it, where the reason struggles with the impetuous delusion, and finds, even in a degree of restraint, which, upon a man not insane, would be no preventive to mischief, a help to self-control, a check upon the specific mode of action to which the malign influence impels him. Such cases are not very common, *neither are they very rare.* I have witnessed them in connection with a strong disposition to strike others, as well as with an occasional rushing impulse to a particular means of self-injury. There are, also, cases in which no struggle of the reason is perceived, marked by a determined disposition to violent and dangerous action, or a strong active suicidal tendency, *in which I apprehend some restraint upon the free action of the body must be imposed,* either by the *passive* resistance of mechanical applications, or by the active coercion of human force." * * *

"If the patient is not to be restrained by a strap, are there no other vulgar appliances within the attendant's reach, by which he may *overawe* the unhappy subject of his care? *I fear and believe there are;* and that in the struggle which cannot fail, occasionally, to take place, fear may be excited, sufferings may be inflicted, far more distressing than those occasioned by the right application of mechanical restraint, with this additional disadvantage, that they are less open to public notice. Nothing is more to be deprecated, in the management of the insane, than protracted struggles between them and their care-takers. In our large institutions the attendants must be left, to a very great extent, to carry out the directions of the superintendent in their own way and spirit; and this, our knowledge of attendants, as a class, hardly justifies us in expecting will even *generally* be the best. * * * The law of brute force, by which men so constantly tend to accomplish their ends, acts through an almost infinite variety of means, and *neither chains nor straps are absolutely essential to its most cruel application.*" Such is the language of Samuel Tuke, a man who, as is testified by the visiting justices of Hanwell, "brings to every branch of this subject great intelligence, and the experience of forty years at the Retreat, the well-known asylum instituted by the Society of Friends, and of five-and-twenty years at York and at Wakefield." P. E.

ART. XIV.—*Drei chirurgische Abhandlungen, über die plastiche chirurgie des Celsus, über organische Verwachsung, und den in das Fleisch gewachsenen Nagel, von* DR. EDUARD ZEIS. Dresden und Leipsig, 1843, 8vo., pp. 176.

Three Surgical Treatises; on the Plastic Surgery of Celsus; on Organic Adhesions; and on the Inverted Toe Nail. By Dr. EDWARD ZEIS.

THE first of these essays—for we can scarcely accord to them the name of treatises—is, strictly speaking, a criticism upon a translation, by Dr. Ryba, of Prague, of the ninth chapter, book seventeenth, of Celsus' treatise *de medicina.*

This part especially of the writings of Celsus has occupied the attention of a host of commentators, whose labours, instead of throwing any satisfactory light upon the true meaning of the Roman physician, have tended rather to render it still more obscure. Von Walther, in his aphorisms, first century, has indicated with tolerable accuracy the general outlines of the subjects treated of in

the chapter referred to, and clearly shown that the lateral operation was already known to its author.

In his manual of plastic surgery, Dr. Zeis has attempted to elucidate, following in the footsteps of Von Walther, the passage of Celsus commencing "*Ratio curationis ejusmodi est, etc.*" This exposition was attacked by Dr. Ryba, of Prague, who insisted that the passage bore an entirely opposite meaning to that given to it by our author; an answer followed on the part of Dr. Zeis, in which many of the objections brought against the interpretation of the latter are refuted; to this Dr. Ryba has replied. In the work before us, Dr. Zeis, to prove the correctness of his own positions in relation to the true meaning of Celsus, in the chapter referred to, has presented the chapter entire, with a running commentary upon the translation of his opponent.

It is useless to notice further this controversy—it is only those who are well acquainted with the Latin that would be able to judge of the accuracy of the interpretation given by either party—nor is the subject in dispute of such magnitude as to warrant our occupying any space with its examination.

The second essay is on organic adhesions, or on the true character of the adhesions which occasionally occur congenitally or soon after birth, between surfaces which are in contact, but, in the normal state, unadherent.

Dr. Zeis, being consulted in the case of a female infant, of about three years of age,—in whom an adhesion of the vagina was discovered to exist some short time after birth, and in regard to which an experienced and skilful surgeon had decided that no operation could, with propriety, be performed until the patient should attain a greater age,—in making a close examination to ascertain the exact nature and extent of the adhesion, separated, with some degree of force, the labia, and found the adhesion to give way very readily without the necessity of resorting to instruments of any kind. He thus, by merely drawing asunder the adhering surfaces, succeeded in effecting their separation to the depth of about an inch, when a fine transparent membrane presented itself, which was readily divided by the scissors, and the opening of the vagina to its entire depth completed. On the surfaces that were separated from each other, the mucous membrane presented a rough, dull appearance, and was evidently not covered with epithelium. At the moment the adhesion was broken up, blood sprung from a multitude of minute points, and spread over the entire surface of the vagina. The hæmorrhage was not, however, extensive, and, with the simplest dressings, in a few days the parts were perfectly well.

"It is true," remarks Dr. Zeis, "that cases similar in all respects to this have already been reported by other surgeons; I am not aware, however, that any one has adduced them to point out the importance of separating such organic adhesions at the earliest possible period, when it can be readily effected without the use of cutting instruments. If the division be deferred until the child is older, the adhesion becomes more and more firm, and when, to prevent the accumulation of the menstrual blood within the uterus, its division becomes absolutely necessary, it can only be accomplished by the use of the knife. The danger attendant upon the operation is sufficiently well known—it is extremely difficult to divide with the knife the adhering surfaces upon the median line, and not to wound or even divide completely the parietes of the vagina, and even after the most successful performance of the operation, the mucous membrane of the cavity is liable to become covered with a firm unyielding cicatrix, by which the dimensions of the vagina are contracted and its full dilatation prevented."

In the case just detailed, the discharge of blood, from a number of very minute orifices, very fully proved that the opposite sides of the vagina were united by a true organic adhesion with anastomosis of the blood-vessels. Dr. Zeis has repeatedly observed a still less grade of adhesion to occur between the prepuce and glans penis, in small boys, who, at the same time, laboured under phymosis, in consequence of which they had been operated on by him. Adhesions of this kind are of not unfrequent occurrence. The separation may be usually effected by a very moderate degree of traction. In some cases there is

a discharge of a small quantity of blood from a number of minute orifices—but not to as great an extent as in cases of vaginal adhesions when destroyed in the same manner. In many cases no hæmorrhage occurs, the adhesion appearing to result from a simple agglutination of the epidermis of the glans and inner surface of the prepuce. This species of adhesion Dr. Zeis has often observed in cases of hypospadias; the cohesion of the prepuce and glans being only partial, the anterior half of the glans remaining free. The epidermis on the adhering surfaces was much thinner than on those where no adhesions existed—the former being indicated, for a long time after the separation, by a reddish sharply defined spot.

With the view of determining the true character and mode of these organic adhesions, Dr. Zeis undertook a series of observations in relation to the nature and mode of union of the eyelids, in those animals who are born with the eyes closed. He found that in such the connection of the lids is effected by a layer of gelatinous matter, which is interposed between their edges, and which is gradually removed from the external surface of the lids inwards, "so that each day the fissure between their edges becomes deeper and deeper until finally their union is destroyed."

On forcibly separating the eyelids after death, Dr. Zeis found, that he had to exert a degree of force that would scarcely have been anticipated, and that the edges of the lids were evidently torn loose from each other, their adhering surface presenting, after the disruption, a rough or jagged appearance. The longer the experiment is delayed,—in other words, the nearer the time when the artificial separation of the lids is made, approaches that of their spontaneous disunion, the less force it demands, and the smoother and more polished appear the edges.

To determine whether the gelatinous substance, forming the bond of union between the lids in animals born with closed eyes, is penetrated by blood-vessels, and permits an anastomosis to take place between the capillaries of the two lids, Dr. Zeis tore open, during life, the eyes of several young dogs and cats. As it was necessary in these cases not only to disrupture the adhesion of the eyelids at their edges, but also to overcome the action of the orbicular muscle, a greater degree of force, as might be expected, was required than in the dead animals; and the degree of force required was also greater the nearer the period of birth the experiment was made. The lids were seized at some distance from their palpebral edges by means of forceps, so that any wounding of the edges by the instrument should be avoided. When the experiment was performed upon a puppy twenty hours old, the moment the edges were torn asunder they became covered with a small portion of very dark blood, but when the experiment was repeated on three other puppies, forty-eight, sixty-two, and one hundred and thirty-six hours old, no bleeding whatever occurred. In three of the animals but one eye was thus opened, and the dogs, being killed, their blood-vessels were injected with coloured size, which, although it penetrated the vessels of the capsule of the lens, indicated not the slightest trace of any vessel passing from one lid to the other. Similar experiments were repeated upon a number of kittens with precisely similar results.

It is probable, therefore, that, while before and immediately after birth, the adhesion of the lids is of a truly organic nature,—from the moment of birth begins to lose its organic character until finally the union becomes entirely destroyed.

From the facts and experiments detailed in the work before us, Dr. Zeis would appear to infer, that between parts which are subsequently intended to be and remain permanently separate, there takes place, occasionally, two kinds of adhesion, the one organic, and the other from a mere accidental agglutination of the epidermis of two surfaces naturally in contact. That of the organic adhesion, in the one case, there is no epidermal covering on either of the adherent surfaces—and the union, which at first is comparatively slight, and readily destroyed by separating the surfaces with a moderate degree of force, becomes, in time, more and more intimate and firm, until finally the separation can only be effected by a knife; while, in another form of organic adhesion, there is

probably a layer of gelatinous matter interposed between the adherent surfaces, which are covered by an epidermis—and that, while the union in this case is at first firm, it becomes gradually weakened, until, at a fixed period, it is spontaneously dissolved by a process which Carus denominates *dehisence*.

The first species of organic adhesion is very generally abnormal; the second, on the other hand, is almost invariably a physiological process.

The third of Dr. Zeis's Essays is an extremely interesting one. The affection usually known as the "inverted Toe Nail," or, to translate the denomination employed by our author, "the growing of the nail into the flesh," is one, when we consider the frequency of its occurrence, and the severe suffering by which it is attended, and the impediment to the use of the foot in walking which it presents, is one of no trifling importance. Every thing, therefore, that is calculated to throw light upon its true nature and causes, and the means by which it may be most certainly and effectually remedied, becomes of interest.

By almost every writer the entire affection, the inflammation of the soft parts, their suppuration, the intensely sensible fungous granulations which shoot up from the lateral edge of the nail, and cover the greater part of the latter—together with all the attendant suffering and lameness—and which, in many cases, continue for months and years—have been ascribed to the edge of the nail pressing upon or penetrating abnormally the soft parts—either in consequence of the too great breadth of the nail, its too arched form, or the unnatural downward direction of its edge; and hence the remedy that is proposed by different surgeons is either the destruction of more or less of the nail, the changing of its form, or the drawing out of its edge from the flesh, and the preventing its again embedding itself into it. They all consider that it is the nail which is in fault, and the whole of their attention is directed to correct its abnormal action upon the soft parts.

Many of the operations proposed, even by surgeons of a very late date, are painful and cruel in the extreme, and few of them afford any other than a temporary relief, while some are calculated ultimately to increase the very evil they are intended to remove.

"If," remarks Dr. Zeis, "the cure of the affection, supposed to result from the growing of the nail into the flesh, was formerly too often attempted by the destruction of the nail, it is only since Dupuytren has counselled its entire outrooting, that the operation has been generally sanctioned and adopted. Me it has, in every instance, filled with horror, and I am happy to say that I could never be induced to perform it. I have had repeated opportunities of observing those patients who had been operated on, according to Dupuytren's method, by other physicians; and found them far from being relieved from their sufferings. Notwithstanding the offending portion of the nail had, in each case, together with its root, most certainly been torn out, as was evident from the separated portion, which they showed me, yet, they had again been supplied by the lateral growth of the remaining part of the nail, but without any connection being formed between the new growth and the matrix, so that a probe could be passed freely from its upper edge to its root. The free lateral edge of this new unattached portion kept up a constant irritation in the soft parts, and re-excited an inflammation in them, unless it was kept constantly cut short, and in such a manner as to prevent the occurrence of a thin sharp edge—by which the original affection would be liable to be reproduced. Now this repeated trimming of the nail the patient was unable properly to perform himself, but it required that he should call in, from time to time, the aid of the surgeon, if he would avoid the very suffering, for the removal of which he had already undergone a most painful operation."

In the 14th volume of Graefe and Walthers' Journal, (page 234,) the reader will find an excellent essay on the invertion of the nail, by H. S. Michaelis, in which is contained a very complete notice of the several operations proposed for its cure—and, in the same journal, (vol. xxii. p. 108,) there is a paper, by A. Sachs, on the same subject, in which the different plans of treatment that have been recommended are examined systematically.

In the medical journals, particularly those of France and England, we meet almost constantly with the recommendation of novel modes of treatment, which, however, are, in most cases, merely modifications of those that had already been proposed.

The most cruel of these operations is that described by Neret, (*Archives Générales de Méd.*, June, 1838,) who directs a spatula to be forced down beneath the nail to its root, and then carried towards the offending edge, so as to separate it fully from all its adhesions; the nail being now turned towards the opposite side of the toe, is to be torn out. Dr. Zeis very properly remarks, that the amputation of the toe would be a more gentle and preferable operation to that of Neret.

Larrey (*Clinique Chirurgicale*, 1836) recommends the nail to be divided, a short distance from the diseased edge, (one-third the breadth of the nail,) by means of a sharp-pointed scissors; the divided portion is then to be separated at its root from the skin by which it is there covered, turned back and torn out. As soon as the hæmorrhage ceases, the part from which the nail is removed is to be cauterized by a hot iron; the dressings are then to be applied and kept on fourteen days, when the lunar caustic is to be freely applied. This differs from Dupuytren's operation only in the smaller portion of the nail that is removed.

Baudens directs the knife, which is to be held in the same manner as in cutting a pen, to be applied a few lines above the root of the nail on its diseased side, and then carried down to the bone, when, with one sweep forwards, the whole of the inverted edge, together with the spongy flesh in which it is imbedded, is to be removed.

Others advise the destruction of the whole nail, or a portion of it, by the application of caustics. Thus Payan, (*Revue Méd., July*, 1840,) after covering so much of the nail as is not to be destroyed with adhesive plaster, applies to the uncovered portion a caustic composed of equal parts of caustic potass and lime. The same procedure is recommended by Barbette and Bordes, (*Journ. des Connaissances, Med. Chirurg., Nov.*, 1839—*June*, 1840,) by Albers, (*Correspondenz blatt Rhein. u. Westphäl. Aerzte*, B. 1, N. 5,) and by Moreau, (*Gaz. Méd. de Paris*, 1836, No. 52;) the latter, however, employed the caustic burnt alum, which required eighteen to twenty months to effect a cure. Labat, (*Broussais' Annales*, 1834, No. 9,) in order more rapidly to relieve the patient of his suffering, destroyed at once the root of the nail by the actual cautery, which is the treatment recommended, also, by the reviewers of Schreger's "Grundriss der Chir. Operationen," in the *Salzb. Med. Chir. Zeitung*, 1827, No. 55.

Donzel (*Essai sur l'ongle incarné, etc.*, Strasbourg, 1836) directs the skin to be dissected back from the root of the nail, and the wound to be filled with charpie; on the following day it is to be filled with *pate caustique*—the joint of the finger being first well dried and covered with adhesive plaster. After the separation of the slough, the edge of the nail, which has been laid bare, is to be removed by the scissors.

Others object to the destruction of any portion of the nail, either entirely or temporarily, and propose various procedures by which the nail may be kept from contact with the inflamed portion of the soft parts, until these have been completely healed. Sachs (*Graefe and Walther's Journ.*, vol. xxii. p. 108) directs the general health of the patient to be restored by appropriate remedies, in conjunction with a proper diet and regimen; the inflammation of the foot to be reduced by the usual antiphlogistic means; and the pus which is formed to be discharged, and at the same time the loosened edge of the nail to be removed by means of a forceps and scissors, either by a simple or V formed incision. If the swelling of the soft parts prevents this from being readily effected, a portion of compressed sponge should be introduced beneath the edge of the nail and kept there until this has been sufficiently freed from the spongy granulations by which it has become imbedded, taking care, however, at the same time, not to employ too great a degree of pressure, as this may increase the suffering of the patient. The healing of the ulceration may be promoted, after the excision of the nail, by the use of tonics.

Martin (*Recueil de Mémoires de Med. de Chir. et de Pharm. Militaires*, vol. 39,

1836,) recommends a triangular portion to be cut out of the middle of the nail, the base being at the free edge; and then the cut edges of the nail to be drawn together by means of a suture of brass wire, with the view of removing the lateral edges of the nail from contact with the inflamed portion of the toe. This operation, independently of being very painful, can afford only temporary relief, inasmuch as the constant growth of the nail will quickly counteract whatever advantage may result from the artificial reduction of its breadth.

Cooper and Burnett (*Lond. Med. and Phys. Journ.*, Ap. 1827, and Feb., 1829) simply recommend the inverted edge of the nail to be removed from the point to the root.

Other surgeons have proposed to give to the nail a less arched or flatter form, so as to prevent, in this manner, its edges from pressing inward upon the soft parts. Houlton (*Lond. Med. Repos.*, Sept., 1824) directs the nail to be shaved as thin as possible at its centre; a triangular piece of cork is then to be inserted, on each side, between the nail and the toe—whether under or above the nail is not said—and a third piece, about one-third the breadth and of the same length as the nail, upon the thinned portion of the latter, and over these a piece of adhesive plaster and a bandage, which is to be changed every three days. Biessy (*Revue Méd.*, 1830, t. ii, p. 54) shaves the whole of the nail as thin as possible, and then touches it six or eight times with lunar caustic, until it shrivels up, and its edges are, in consequence, drawn out of the soft parts. This procedure cannot fail to produce the entire destruction of the nail. Rothamel (*Zeitschrift für die Ges. Heilk, etc.*, B. 1, Hft. 1) directs the nail, for the breadth of two lines, extending from the point to the root, to be scraped as thin as possible, by means of a piece of glass. Pressure being now made upon the central portion of the nail, the edges are so far drawn up as no longer to bear upon and irritate the inflamed soft parts. The scraping of the nail is to be repeated every other day.

Pétréquin (*Archiv. de Méd. Belge.*, March, 1841) thins the nail by means of a file, and applies pressure upon it by means of sponge and adhesive plaster; others, as Bonnet, (*Bulletin de Thérap.*, Aug., 1834,) propose to flatten the nail, and thus relieve its edges, by bandages and graduated compresses alone. Labarraque (*Gazette des Hôp.*, April, 1837) employs a thin plate of lead, bent in a particular manner, one edge of which is inserted beneath the edge of the nail. A somewhat similar plan is pursued by Lechler (*Würtemb. Med. Correspondenz blatt*, B. 8, N. 47). According to Vésignié, (*Journ. Hebd.*, N. 34–36, 1836,) the plan of Brachet consists in cutting away the soft parts; and when the nail requires to be entirely destroyed, he prefers Dupuytren's operation, in conjunction with the cautery. In the generality of cases, he merely removes the superfluous portions of the nail, and then puts on a clasp composed of a number of silver plates, which is elevated by means of a screw, and raises up with it the edges of the nail, by which means all pain is removed.

"It is not," remarks Dr. Zeis, "merely the painful and cruel character of the principal operations that have been proposed for the cure of the inverted toe nail, that renders them so disgusting to me—other operations are attended with much pain and suffering, which excite in me no such feeling. But my opposition to them is derived from the circumstance, of the whole of them being based upon erroneous principles, and their being all unadapted to afford any radical and permanent relief."

In many, though by no means in the majority of cases, the cutting the nail too short is the primary cause of the affection. The soft parts, being no longer kept down by the projecting free edge of the nail, are forced, by the pressure of the shoe or boot in walking, against and even over the truncated end of the nail, and, as this again increases in length, it may be made to even penetrate into them—giving rise thus to inflammation, swelling, ulceration and fungous granulations, with a degree of suffering, which often renders the slightest motion of the foot unbearable. The disease is most liable to occur in the great toe, in consequence of the greater amount of motion and pressure to which it is subjected in walking. The patient seeks to relieve his sufferings by constantly cutting away portions of the nail, but in so irregular and unskilful a manner as rather to increase than diminish the evil.

The disease most commonly occurs at one or other of the lateral edges of the nail of the great toe—and in this case without the nail having been cut at all. No doubt, in numerous instances, it results entirely from the soft parts being pressed by too narrow or misshapen boots or shoes against and over the sharp edge of the nail. But cases frequently occur where it cannot, with propriety, be referred to this cause. Dr. Zeis believes, that under such circumstances, its production is to be attributed to that particular constitution of the blood, which, in certain persons, predisposes to furunculi and other spontaneous local inflammations.

The inflammation once established, it is evident that the hard and sharp edge of the nail must act as a foreign body, and, by its constant irritation, keep up and aggravate the disease—giving rise to suppuration, ulceration and the production of luxuriant fungous granulations, of an intensely painful character, which rise up over the edge of the nail, and often cover it to so great an extent, that we are unable to obtain a sight of it, even by drawing them on one side. It is this that has favoured the belief, that the whole of the evil has resulted from the too great breadth of the nail causing its edges to grow into the flesh; but there occur a greater number of broad nails unconnected with the affection under consideration, than there do in connection with it.

Michaelis describes a condition of the nail, which he supposes to particularly favour its growth into the flesh. This is a very rounded form of the nail, so much so, that it resembles the half of a perfect cylinder. This condition of the nail Dr. Zeis has repeatedly observed, but not always in cases of its so called growth into the flesh; on the contrary, he has, in numerous instances, met with it in individuals who had never suffered from this affection. Even when the disease has been connected with an arched condition of the nail, it has been entirely healed without the destruction or flattening of the latter.

Dr. Zeis considers that it is all-important, in every case, to attend to the condition of the patient's general health, which, in a large number, will be found to be more or less deranged. As the patient's health improves, under an appropriate therapeutic and hygienic treatment, the affected foot being kept at rest, and the toe guarded from all pressure, either in walking or from a too narrow boot or shoe, the local disease will be found, very generally, to diminish, and, in a short time, to disappear entirely.

If, however, the disease has resulted from keeping the nail too short, the doctor considers it indispensable that it should be allowed to attain its proper length, which, with the simplest dressings, and the avoidance of motion and pressure, is sufficient to effect a perfect cure. So soon as the nail acquires the slightest projection, he is in the habit of introducing beneath it, by means of a fine probe, a small portion of charpie, and to prevent the falling out of this, he covers the end of the toe with adhesive plaster, spread upon gold-beater's skin, which adapts itself better to the parts, and produces a less amount of pressure than when it is spread on silk or linen. The toe is then to be bathed frequently, during the day, in warm water.

If the soft parts, at the point of the toe, are in so swollen a condition as to interfere with the dressing just directed, or completely to cover and conceal the edge of the nail, Dr. Zeis is in the habit of removing them by the knife.

"Even in those cases," he remarks, "in which the nail has been cut so close as to be reduced to one half its length, under the above treatment, it will require but two, or, at the furthest, three months to effect a permanent cure, and to restore to the nail its proper length and natural shape.

"Much more obstinate, however, are those cases in which the disease affects, at the same time or is entirely confined to, the side of the nail. These are, especially, the cases in which the destruction of the whole or a part of the nail has been considered indispensable to the cure. I have, however, in such, seldom failed to secure the entire and permanent relief of the patient by rest, the frequent use of the foot bath, and the removal, by the knife, of the fungous granulations or spongy and morbidly sensible flesh, by which the edge of the nail becomes covered. I will not, however, pretend to deny," he adds, "that cases of a very aggravated character may occur, in which the unhealthy condition of the ulceration, seated beneath the nail, will require the loosened edge

of the nail to be cut away, that our applications may be applied directly to the ulcerated surface, and also to prevent the constant irritation which is kept up in it by the detached portion of the nail. It is never necessary to destroy the whole or any part of the nail, even under such circumstances."

The leading propositions which Dr. Zeis has attempted to establish in the essay before us, are thus summed up in the author's own words.

"1. The so called growing of the nail into the flesh, is not, excepting, perhaps, in a very few cases, the result of a too great breadth of the nail; but is caused entirely by the inflammation and intumescence of the soft parts.

"2. The arched condition of the nail, which is of frequent occurrence, is perfectly natural, and neither can nor requires to be changed by shaving away the nail and the application of pressure.

"3. It is not, therefore, to the removal of any morbid condition of the nail that the attention of the surgeon must be directed, but to the removal of the inflammation of the soft parts, the healing of any ulceration that may exist, and the destruction of the intumescence caused by the fungous flesh about the edge of the nail, which latter is best effected by cutting it away with the knife.

"4. In the treatment of the local inflammation, in the affection under consideration, the frequent use of warm pediluvia is preferable to, and more effective than most other means.

"5. In a few cases, of unfrequent occurrence, the temporary removal of the loosened edge of the nail will be required: in the majority of cases, however, even this will not be necessary.

"6. The removal or destruction of the whole or any part of the nail, is in no case required; and from its severity, and the mutilated state in which it ever after leaves the foot, should be considered as an unwarrantable practice, and one to be entirely banished from among the operations of surgery."

We have given to the essay before us an extended notice, because the frequent occurrence of the affection of which it treats, the intense suffering with which it is invariably attended, as well as the evident ignorance that exists in relation to its true character, as is evidenced by the severe and uncalled for operations which have been proposed for its removal, induce us to believe that a very full exposition should be given of the views of an author who has thrown much light upon its pathology, and presented a plan of cure as simple as it is effectual.

The views advocated by Dr. Zeis in relation to the causes of the inverted toe-nail, we have entertained for many years; and have pursued a plan of treatment very similar to that which he recommends. In no instance have we had occasion to remove any portion of the nail, though we can conceive of cases in which the cutting away of the loosened edge of the nail may be necessary, as Astley Cooper remarks, to allow of the healing of the ulceration of the soft parts, by removing the irritation which the nail constantly keeps up. The success with which this plan of treatment has been attended, in the cases that have fallen under our care, emboldens us to recommend it strongly to the notice of the profession. D. F. C.

ART. XV.—*Sicheres Heilverfahren bei dem Schnell gefährlichen Lufteintritt in die Venen und dessen gerichtsärztliche Wichtigkeit.* Von Dr. CH. JOS. EDL. v. WATTMANN, k. k. n. ö. Regierunsrathe, Leibchirurg, o. ö. Professor der praktischen Chirurgie und der ersten Chirurgischen klinik, &c. Wien, 1843. 8vo. pp. 190.

A certain Means of Preventing the Rapid Occurrence of Fatal Symptoms in cases of the Accidental Introduction of Air into the Veins, and a consideration of the Medico-Legal importance of this accident. By CH. J. E. v. WATTMANN, M. D. &c.

THE author of the present treatise has hardly done himself justice in the title he has given to it. The main object of the work, it is true, is to make more generally known the means by which Dr. Wattman has succeeded in preventing, in the cases which have occurred under his notice, the immediate death that has heretofore been considered an almost certain consequence of the acci-

dental admission of air into the veins. The author has, however, not confined himself to a mere exposition of his mode of treating this accident, but has, with no little ability, examined the whole subject in reference to its pathological, therapeutical, and medico-legal bearing. Nearly every important fact connected with the causes which favour the entrance of air into the veins during certain surgical operations, the symptoms to which such entrance gives rise, the reason of its fatal effects, and the means calculated to guard against its occurrence is presented—with an analysis, also, of the principal recorded cases in which it has occurred, and a notice of the experiments upon inferior animals that have been undertaken to elucidate its true character, prevention, and management.

The work is, in fact, a concise, but nevertheless very complete and masterly monograph upon the subject of which it treats—and one that will amply repay the surgeon for the time spent in its careful perusal.

It is divided into three parts.

The first part treats of the nature, causes, symptoms, and effects of the accidental entrance of air into the veins during surgical operations.

The rapidity with which death ensues, when no effectual means are taken to prevent the entrance of an amount of air sufficient to derange the action of the heart, is noticed; with a historical sketch of thirty-four cases of the accident, reported by different surgeons. Next follows an examination of some experiments on animals, undertaken with the view of elucidating the nature of the accident and the cause of its general fatality.

The author then enters into an examination of the evidence by which the fact of the sudden deaths occurring in certain surgical operations, being the result of the entrance of air into the veins, is positively established; the difference in the phenomena in different cases, and the causes of the more rapid death which the accident produces in men than in inferior animals are then noticed.

After showing that it is chiefly during operations about the neck, upper portion of the thorax, and the axilla that the accident has occurred, and, consequently, that it is almost invariably the result of an accidental opening of one or other of the large veins situated in those regions, and which terminate, after a short course, into the right auricle of the heart, the author examines the particular circumstances which favour the entrance of air into these veins—which are,

1. The dragging and forcible distension of the coats of the vein during the operation. By the lateral dragging of the venous coats, and the consequent enlargement of the calibre of the vessel, even small veins may be rendered, under particular pathological conditions, capable, when wounded, of admitting air into the heart—as when they are imbedded in the cellular tissue which immediately surrounds a tumour or other morbid growth. With the gradual increase of the tumour, the surrounding cellular tissue, and the veins contained in it, become distended in length and breadth; and the latter become increased in calibre, while their contraction when they are wounded is impeded or entirely prevented. In the same manner, also, the boundaries of the space, within which surgical operations endanger the admission of air into the veins, are augmented; the influence of the lateral pressure of the atmosphere being prevented in vessels that were previously fully defended by the aponeuroses of the neck.

2. The upright position of the patient during the operation. The more the space at which the operation is performed is situated above the horizontal line which marks the position of the heart, the less are the veins distended with blood, and the more readily the external air passes into them when they are wounded, while, at the same time, they are defended from the lateral pressure of the atmosphere.

3. The patency of the wounded vein in consequence of the adhesion of its circumference to tumours or aponeuroses.

4. The partial division of the vein, which allows the air to enter and pass with the blood into the heart.

5. The thickening of the coats of the vein from chronic inflammation—and

6. A morbid rigidity and ossification of the coats of the vein, by which their collapse is prevented. The undue rigidity or ossification of the venous coats

can seldom, however, of itself, be a cause of the accident under consideration; as veins so circumstanced may be readily detected during the operation, and avoided; they, also, occur but seldom: whereas, on the other hand, a morbid softening and distensibility of the venous coats may contribute to the production of the accident, from a portion of the vein being easily drawn out by the dragging, that occurs in the efforts to remove a deep-seated tumour, into a pyramidal form, the apex of which portion is in danger of being cut off by a stroke of the knife, in effecting the division of the inferior adhesions of the tumour.

7. The entire division of a vein contributes to the entrance of air into its cavity only in those cases where the central end of the divided vessel does not contract, or is stretched open by the adhesion of its external coat to surrounding parts; and it is to such cases alone that the remark of Cormack, that air, unmixed with blood, passes into the heart, will apply—in cases, however, where no cause exists to prevent the collapse of the venous coats, when a vein is entirely divided, it is immediately closed by the lateral pressure of the atmosphere, and no air can enter it.

The supposition of the larger veins being provided with a fibrous coat, as Berard asserts, but the existence of which Cormack conceives not to be demonstrated, is not necessary to explain the entrance of air into the veins.

8. The deep inspirations, which Poisseuille especially insisted upon, and to which Charles Bell and Cormack have directed particular attention, and which many other observers, with Amussat, have considered worthy of notice; and which occur either accidentally or are caused by a sense of oppression, by the constrained position of the patient or of the parts operated on, or by certain manipulations of the surgeon or of his assistants, have, it is true, only a mediate influence in favouring the entrance of air into the veins,—they nevertheless act as a very powerful auxiliary cause. Their influence is the greater, the more, during each inspiration, the capacity of the chest is augmented—and, in this manner, the entrance of the air into the large veins within the thorax is facilitated, and the amount admitted is increased.

The general phenomena by which, according to Dr. Wattmann, the entrance of air into a vein is immediately followed, are, an instant sense of faintness, preceded by an exclamation, and probably the declaration, by the patient, that he is dying or suffocating, with a feeling of the utmost oppression and a severe shivering; the faintness may occur, however, alone, and to so great an extent that the patient immediately loses all consciousness and falls to the ground. The forehead becomes covered with a cold perspiration, and, within a quarter of an hour, often sooner, death ensues. No blood flows from the opened vein during the upright position of the patient, and but very little when he is placed in a horizontal position. A clear rushing sound during the performance of an incision indicates the entrance of the air. Upon dissection, after death, air is detected in the blood-vessels, and particularly in the cavities of the heart.

We have given above a mere enumeration of the phenomena indicative of an entrance of blood into the veins—to understand them properly and derive from them the immediate knowledge of the occurrence of the accident, it will be necessary to study the detailed examination of their relative importance, which is given by our author.

The cause of the sudden death, upon the admission of air into a vein, depends, according to Dr. Wattmann, upon the progressive decrease in the activity of the heart, and of its influence upon the circulation, in consequence of the sudden over-distension of the venous system by the mixture of blood and air; the insufficient oxydation and decarbonization of the blood in the lungs; with simultaneous and equal decrease in or impediment to its electro-magnetic influence; the diminution of the exciting and nutritive qualities of the blood, and its consequent diminished capacity to maintain the functions of those parts of the brain, spinal marrow, lungs, and heart, the united actions of which are essential to life.

The second part of the present treatise is devoted to a consideration of the means by which the entrance of blood into the veins, during an operation, may be guarded against, or its deadly influence prevented.

We can merely afford space for an account of Dr. Wattmann's own plan—

which he pronounces to be certain, whenever sufficiently early reverted to. This consists in the instant closing of the orifice in the vein by which the air enters. This may be effected with most certainty and least delay, by pressing the point of the index finger upon the spot at which the last incision was made, and where the noise of the entering air is heard. The moment the finger is applied to the orifice in the vein, the hissing or rushing sound ceases. If the patient has already experienced a degree of faintness, he is to be roused by dashing cold water on his face, and by the application of the fumes of vinegar to his nostrils.

If the operation is not entirely completed, it should be finished, as soon as the patient is sufficiently recovered, without, however, the removal of the finger from the open vein. If the hand be in the way, however, of the operation, the point of a finger should be applied, by an assistant, upon the vein, between its wounded part and the heart, and then the finger may be removed from the opening, by sliding it, while gentle pressure is still made with its point, along the course of the vessel, towards the heart, as far as is necessary, in order to expose the wounded portion.

The permanent closure of the vein is to be effected, according to the size, character, and position of the vessel—either

1. By quickly uniting the lips of the wound.
2. By a ligature upon the vein, or by torsion—or,
3. By the lateral ligature, when the vessel is opened only on one side.

The 1st is sufficient in wounds without loss of substance, and when the sides are even, and can be approximated with sufficient closeness.

In those wounds with loss of substance, where the orifice in the vein can be sufficiently covered with a flap of the wounded integuments, this may be held against it with sufficient pressure to prevent the entrance of air, by means of a suitable dressing.

The ligature or torsion of the vein is indicated in those cases in which, 1st, a vein of subordinate rank—the enlarged branch of what, in the normal state, is but a small vessel, conveying the blood from parts of little importance, to the venous trunk, is either transversely or obliquely divided; or in which. 2dly. The covering of the orifice in the vein with a flap of integuments is either impossible or not to be depended on.

Where there has been considerable loss of substance in the operation, so as to prevent the full and effectual closure of the wound by the approximation of its edges—when the divided vein is an important trunk which conveys blood immediately to the heart, and the wound forms but a small opening through one side of the vein, the lateral ligature of the vessel is indicated. This consists in an accurate approximation of the inner surface of the coats of the vessel, nearest to the inner edge of the wound through its parietes, and the careful application of a ligature on the outer surface of the wounded side of the vein, so as completely to close the wound, but, at the same time, to allow sufficient space for the passage of the blood through the vessel.

The manner of performing this operation, which is one peculiar to Dr. Wattmann, the instruments demanded, and the after treatment, are all minutely laid down in the section before us. Every one who feels inclined to repeat it must study the details given by the author; but it does not fall within our plan to translate so large a portion of the work as would be necessary to render those details sufficiently clear for the use of the surgeon, and any attempt at an analysis of them would be altogether useless.

A table is appended of thirty-six cases of entrance of air into the veins, in which the name of the operator or observer is given, with the year in which each operation or observation was made, the region in which the wound occurred by which the vein was opened—the phenomena that ensued—the means that were had recourse to after the operation to prevent the fatal result—and the periods when death took place in the fatal cases. Of these thirty-six cases, in eighteen, the patients were saved, and in eighteen, death ensued. In thirteen of the recoveries, immediate compression was made upon the orifice of the wounded vein, and, in one case, compression was made upon the abdomen;

in four cases no mention is made of the means resorted to. Three of the recoveries are in cases reported by our author—two in cases reported by M. Clement, and thirteen in cases reported, respectively, by Drs. Mott, Warren, Stevens and Mussey; and MM. Pierre and Coudougnés, Rigaud, Delapert, Malgaigne, Amussat, Velpeau, Begin, Toulmouche and Mayor.

The third section of the treatise is devoted to the medico-legal questions involved in the subject under consideration. As our principal object, in the present notice of Dr. Wattmann's treatise, was to make known his views and observations in relation to the effects resulting from the accidental introduction of air into the veins, and his means for preventing the fatal result which has been found so generally to occur in such cases, we shall pass over without remark the interesting details contained in the concluding section—more especially as to do justice to them would require us to extend this notice far beyond what our limits would permit.

We recommend to our surgical readers the work of Dr. Wattmann, as one replete with observations, of a most important character, in regard to almost every important particular in regard to the nature, phenomena, and prevention of one of the most appalling occurrences to which those patients are occasionally exposed, upon whom operations are to be performed in the parts about the neck, clavicles, and axilla. D. F. C.

ART. XVI.—*Ueber eine neue Reihe Subcutaner Operationen.* Von DR. W. HENNEMANN, Grossh. Mechlenburg-Schwerinschem Geheimen Medicinalrathe und Leibartze. Rostock und Schwerin, 1843: 8vo. pp. 194.

On a new series of Subcutaneous Operations. By DR. W. HENNEMANN, Personal Medical Councillor, and Physician in ordinary, to the Grand Duke of Mecklenburg—Schwerinschen.

To such as feel desirous of making themselves acquainted with the character and pretensions of subcutaneous surgery, the present treatise may be recommended as a suitable manual. The author has presented a very fair history of the several subcutaneous operations that have been recommended by modern surgeons, together with an exposition of the cases to which they are adapted: of the views and experience of the most prominent of their advocates, and of the leading arguments by which their superiority, under certain circumstances, over the ordinary methods of operating, is supposed to be established.

Dr. Hennemann appears to have been himself firmly convinced of the superior advantages of subcutaneous operations, in a large number of cases, and has, in consequence, attempted to place them in the most favourable point of view, as well in regard to the greater facility of their performance, and the less amount of danger and suffering by which they are attended, as in regard to their successful termination, and the diminished extent of deformity which results from them.

Notwithstanding the examination which our author makes of the merits of subcutaneous surgery is, to a certain extent, one sided—the examination being conducted in the character of an advocate rather than in that of an impartial inquirer after truth—he, nevertheless, cannot be accused of so entire a disregard of candour as to conceal all objections that have been made to his favourite modes of operating, or to deny the difficulties by which they are occasionally surrounded, and the serious failures that have not unfrequently attended them.

His object would appear to be, rather to overturn objections than to lead his readers to suppose that none such really exist.

While we admit that the treatise of Dr. Hennemann, is one of uncommon interest, and, in many points of view, replete with valuable information, we must confess that it has failed to convince us of the propriety of subcutaneous operations, or even of their superiority over the ordinary plans of operating, in the cases even that are esteemed the most favourable for their performance. It is not to be denied, that under certain circumstances, to be able to operate without

the division of the integuments, would be decidedly advantageous; but still, the serious objections to which this method of operating is liable, render the advantages that would otherwise result from it, of infinitely minor importance.

The general subject of subcutaneous surgery is discussed, by Dr. Hennemann, as introductory to a new series of operations of this class, of which he is himself the author.

After a short but excellent history of subcutaneous operations, the author describes the method of applying the subcutaneous ligature to the brachial, radial, anterior ulnar, crural, and anterior tibial arteries, as practiced by F. L. Tavignot. (*L'Examinateur Médical*, Feb. 13–20, 1842.)

Dr. Hennemann concludes his examination of the subcutaneous application of ligatures to arteries, with the following general conclusions.

1. The subcutaneous ligature is practicable for a certain number of arteries.

2. In contradistinction to the ordinary method, the subcutaneous application of a ligature is more easily and certainly effected, in the living than in the dead subject.

3. The objections that have been made to the mediate ligature, in consequence of the injury that may result from the repeated introduction of the needles, even if they are well founded, form no just ground for the rejection of the subcutaneous mode of operating, inasmuch as such injury can result only in a very limited number of cases.

4. The circulation and innervation of the limb will become restored, even should the collateral veins and nerves be included in the ligature.

5. In regard to the dangers of the occurrence of mortification, in consequence of the diminished supply of blood to the limb, in cases where a principal artery is tied, this is, perhaps, as liable to take place after the subcutaneous as after the ordinary method of applying the ligature.

After some observations in regard to the application of the subcutaneous ligature, in cases of enlarged and varicose lymphatics, and in cases of rupture and varicose swellings of the veins, Dr. Hennemann presents a synopsis of M. Guerin's general summary of the subcutaneous plan of operating. We have then an enumeration of certain cases, in which it has been successfully employed by our author.

1. In the opening of bloody tumours, which occasionally form after the subcutaneous division of the larger muscles.

2. In the opening of serous pouches, which not unfrequently form after the absorption of the blood effused in cases of subcutaneous myotomy.

3. For the making of incisions in the commencement of inflammatory tumours, with a view to their dispersion. In the three cases in which Dr. H. had recourse to this operation, the inflammation and swelling were immediately removed.

4. In the opening and evacuation of a mellicerous tumour.

5. For the removal of a small exostosis from the upper and outer part of the tibia, with absorption of the fragments of the tumour, without the occurrence of the slightest inflammation.

6. For the opening of congestive abscesses on the sides, loins and back.

7. For a number of entirely new myotomic operations, which no one, without a previous acquaintance with the principles of subcutaneous surgery, would have undertaken.

The ensuing section treats of the "essential character of the practice of subcutaneous surgery."

"The end to be obtained by subcutaneous operations," Dr. H. remarks, "is the preservation of the wounded tissues, as well as the fluids effused beneath the surface, from contact with the external air—its means, the penetration of the skin, for the division of the tissues beneath it, by a simple puncture, through which the air from without cannot penetrate; and its result, the enabling of the wounded tissues to unite by the first intention, and the walls of the cysts, in which the effused fluids were contained, to become obliterated, without inflammation or decomposition of their contents."

Dr. Hennemann next describes "a new series of subcutaneous operations."

1. For the removal of ganglions. The description of the operation adapted to this end, is preceded with an interesting inquiry into the true character of these tumours, and the causes by which they are produced, in which the opinions and observations of the most authoritative modern surgeons, principally of the continent of Europe, on these points, and on their proper mode of treatment, are cursorily noticed. 2. For the removal of enlarged bursæ mucosæ, from excessive effusion, and probably a changed character of their contents. 3. For the removal of ranulæ. 4. For the cure of hydrocele. 5. For the cure of spinabifida. 6. For the dispersion of frigid, lymphatic, metastatic and congestive abscesses. 7. For fistulæ, properly so called. 8. For acute abscesses. 9. For panaritium, and 10. For *cephalæmatomia*,—the removal of the bloody tumour which occurs on the head of new-born infants—and of similar tumours on the heads of adults from accidental injuries.

The beneficial results of most of the subcutaneous operations advocated by our author, are illustrated and enforced by a number of cases which fell under the notice of Dr. Hennemann himself, or that of his colleagues, or which are selected from the writings of those surgeons by whom the new plan of operation is recommended and practised.

It would be useless to attempt a description of the plan of operating, in the several cases to which the subcutaneous method is supposed to be adapted. Independently of its extending our present notice to an unreasonable length, for no abstract would convey any useful information to our readers—there are strong doubts entertained by many, as to the propriety of this method of operating, excepting in a very limited number of cases; in many of which, it was practised long before the views of those, by whom its propriety is now advocated, were promulgated; and until these doubts are settled, the objects of this journal will be best accomplished, we are persuaded, by a simple announcement of the claims of subcutaneous surgery, and a brief notice of the leading works of which its exposition and defence constitute the leading topic.

By those who are desirous of studying "the new method," as it is repeatedly termed, in the treatise before us, with a view of testing its supposed advantages; a knowledge of the several plans of operating, must be acquired by a reference to the writings of those by whom they were originally suggested, or of some able compilation as that under consideration. D. F. C.

ART. XVII.—*Enchiridion Medicum; or the Practice of Medicine. The result of fifty years practice.* By C. W. HUFELAND, Counsellor of State, Physician in Ordinary to the late King of Prussia, Professor in the University of Berlin. From the sixth German edition. Translated by CASPAR BRUCHAUSEN, M. S. Revised for the proprietor by ROBERT NELSON, M. D. Second edition. New York, 1844. 18mo. pp. 630.

THE high professional character, and the long and extensive experience of the veteran Hufeland, as well as the influence which he exercised, for many years, over the pathological and therapeutical opinions of a large portion of the physicians of Germany, and of northern Europe generally, invest with peculiar interest the several publications on medical subjects that have emanated from his pen.

The work before us, which appeared in 1836, when the author had attained his seventy-fourth year, is intended—to use, with a slight modification, the language of the author himself—as the depository into which he cast the final result of his long experience as a physician—to serve as a clinical guide for the young practitioner, and give to his mind a right direction—by pointing out the various diseases he will have to contend with—with the most approved treatment to be adopted for the cure of each; to serve him, in short, as a complete, though concise, manual, divested of all hypothesis, while it embraces all that is essential in a practical point of view.

" Was mich das Leben gelehrt, was mir durch Leben geholfen,
Leg'ich danbar und treu hier auf Hygieens Altar.
Helfen durch Lehre und That was meines Lebens Bestimmung,
Möchte im Tode auch noch Lehrer und Helfer euch Sein."

"What to me a lifetime has taught, and by which, throughout life, I have profited, I here, with gratitude and faithfulness, lay upon the altar of Hygeia, that, by the opinions and practice, which have become settled by a lifetime's experience, I may still, after my death, be a teacher and a guide to you."

As an exponent of the medical views and experience of one of the oldest and most distinguished of the German physicians of the old school, the work before us will be consulted with interest; and although we certainly cannot recommend it as a manual to initiate the student into a knowledge of the most approved views in pathology, and the best established plans of treating diseases, the practitioner may, nevertheless, derive an occasional useful hint from a study of its pages. For, while many of the pathological views of the author have become obsolete, and others must be admitted to be extremely doubtful, yet, amid a mass of observations on the character and treatment of disease, that have stood the test of fifty years experience, there will be found very many of great practical value—which, in the search after novelty, that distinguishes the labours of many of the modern cultivators of the medical sciences, have been either undervalued or entirely overlooked. There is much, indeed, of the older therapeutics, that has been repudiated in favour of more recent refinements in practice, the revival of which would be advantageous.

To the student, as well as to the practitioner, we would recommend an attentive perusal of the introductory discourse on "The Relations of the Physician" to the sick—to the public, and to his colleagues. It presents an admirable sketch of the pleasures, the duties and the pains of our profession, and is replete with sound maxims and sage advice, by which all may profit. It is, in fact, an eloquent discourse on all the leading points of medical ethicks.

It will scarcely be expected that we should enter into a discussion of the merits of the opinions and practice of Hufeland as set forth in the volume before us. These have become, in a certain sense, a part of the history of medicine. Nor could we, with any profit to our readers, present an analysis of the work; it is itself a compendium, that it would be scarcely possible to further condense. One of its greatest faults is, indeed, its conciseness. D. F. C.

ART. XVIII.—*Summary of the Transactions of the College of Physicians of Philadelphia.* March to October, 1844.

THE principal articles of interest in the present No. of the Transactions of the College, are the Annual Report on the Diseases of Children, by Dr. Condie, and a case of death after parturition, caused by rupture of the uterus, by Dr. Henry Bond. This last we transfer to our pages:

April 8th, 1844. At 10 P. M. Dr. Bond was requested to visit Mrs. R——, and was informed by the messenger, that she was affected with colic. Mrs. R. had a good form and constitution, and enjoyed good health until this attack. She is 28 years of age; was married on the 4th of last October; had never menstruated after marriage; supposed that she became pregnant within one week after that event, and expected to be confined in the beginning of the second week in July. About noon to-day she was reaching over a flour barrel that stood end-wise, to pick up something behind it, in doing which she felt something give way, and was attacked with pain in that part of the abdomen where she came in contact with the sharp edge of the barrel. The pain continued all the afternoon and evening, and was supposed by her female attendants to be colic, and, in consequence, ginger-tea and other domestic remedies had been administered. But the pain became worse in the evening, and when the doctor visited her, she evidently had labour pains, but no stools or discharge; he directed her an opiate, rest and a cool regimen, with orders to

send for him if she was not shortly relieved. At 11½ o'clock, P. M., he was sent for again. The pains had increased, and the os uteri had become relaxed, and more than half dilated. The pains were more distressing than usual in such cases, and she was inclined to keep her hand applied to that part of the abdomen which had come in contact with the barrel. The membranes were very strong, and continued unbroken, until a loose sac of water presented externally, and when broken, there was a gush of a large quantity of liquor amnii. The delivery of the child followed almost immediately afterwards—April 9th, at 2¼ A. M. Soon after this, he began to use the ordinary means to promote the delivery of the placenta, which he continued to do for three quarters of an hour without any effect. There was no sign of its coming—there was neither any expulsive pain, nor the least appearance of any coloured discharge. He then gave twenty grains of ergot, and after a quarter of an hour, twenty grains more. At the end of ten or fifteen minutes more, no uterine contraction had occurred,—at least he discovered none, either by questioning the patient or by watching her motions.

The uterus was so low that he could easily pass his finger within its neck, which was soft and relaxed; but above that, the uterus seemed to have assumed something like an hour-glass contraction, so low down towards the neck, as to embrace in the upper chamber nearly or quite all of the placenta. He immediately prepared to introduce his hand, without waiting longer for the ergot to act. The cord was ten inches long, very large, and firm for that period of gestation, except for a short distance near its insertion into the placenta, where it was very slender. In his attempts to examine the condition of the uterus and to deliver the placenta, the cord was torn from its attachment. This occurred only a short time before the introduction of the hand. The *os externum* and the *os cervix uteri* were so relaxed, that the hand passed with ease until it reached the above-mentioned contraction. This was so rigid as to occasion some delay. During the process of introducing the hand, pretty strong uterine contraction came on, which increased the delay. Whether this was the effect of the ergot, or of the irritation of the hand, is doubtful;—probably it was partly owing to each. Upon passing the hand through the stricture, into the chamber containing the placenta, it was found that this was detached from the uterus in no part, so far as could be perceived. Up to this period there was no sanguineous discharge, except a very little, which was supposed to proceed from the separation of the cord. The doctor proceeded slowly and carefully to detach the placenta, which adhered so firmly as to make the operation tedious. After the whole of the placenta was separated, he found a strong membranous attachment to one part of the fundus, which he could not overcome. It was of limited extent, being less than an inch. He used as strong traction as he thought could be done without endangering a laceration of the uterus. When pulling it, it seemed to yield a little, but, upon examination, there was no sign of its being detached. It occurred to him that, possibly, there might be an hour-glass contraction, embracing a small part of the placenta and membranes, although he could perceive no rounded edge and depression around the adhesion such as he should expect in that case; but to determine this, he applied the other hand to the abdomen, and this examination entirely satisfied him that such could not be the case. He then separated the placenta from this adhering membrane, and withdrew it. The membrane, which felt like a ligament, had such remarkable strength, that the separation was not easily accomplished. The operation occupied three quarters of an hour, and was attended with very little hemorrhage.

The child lived twelve hours. The fœtal end of the cord, as before observed, was very thick, and he tied it, as he thought, very carefully; but in a little while he discovered that, in proportion to the size of the child, there was considerable hemorrhage, such as might have destroyed it, had it not been discovered and arrested. It had not, however, produced any signs of anæmia.

10*th*. Last evening the patient began to be uneasy and feverish,—a cathartic of senna, manna and sulphate of magnesiæ, in divided doses, was directed. It operated sufficiently during the night, but the febrile symptoms and uneasi-

ness were not mitigated. Tongue a little coated—pulse 110 to 120—some tenderness in the left iliac region—the uneasiness in the head increased. In the afternoon, the symptoms all aggravated—no lochial discharge. Directed the neutral mixture—v. s. oz. xxiv—fomentations. The blood drawn exhibited a thick buffy coat and small cupped coagulum.

11*th*. Head much relieved since the v. s., but the patient had a very uncomfortable night—tongue has a yellowish white coat, thickest in the middle—had a severe chill this morning at 7 o'clock—pulse 120 to 130. After the application of the fomentation, a copious sanguinous discharge from the vagina came on, which it was thought desirable to promote, therefore the v. s. was not repeated nor leeches resorted to this morning as would otherwise have been done. Directed cal. ipecac. and opium. At 5 P. M., pulse 102; at 11 P. M., 82—all the symptoms mitigated. The pain in the abdomen, last night and to-day, which was almost entirely confined to the iliac region, was intermittent like after pains.

12*th*. In the morning, found her more comfortable in every respect—pulse 80 to 90. No tympanitis or swelling of the abdomen, and the tenderness is chiefly confined to the part before-mentioned—sanguineous discharge has ceased, and the vaginal discharge has become offensive—some confusion of the head in the night and this morning. When visited at 5 P. M. the patient was found to have become worse soon after the morning visit—great increase of febrile excitement and of tenderness of the abdomen—thirst great—began to be tympanitic. Upon examination, found some shreds of membrane in the neck of the uterus, which were removed; one part, however, extended into the uterus, which could easily be seized hold of, but adhered too firmly to be extracted without applying more force than could be done with safety. Sometime afterward it came away and the offensive discharge ceased.

13*th*. She began in the night to belch up whatever she drank—pulse very variable—tympanitis increasing, as well as the distress and tenderness in the abdomen. Dr. Meigs saw the patient twice to-day, but it is unnecessary to detail the treatment, which had no influence in controlling the disease. The discharges from the stomach became more and more dark, until they closely resembled coffee grounds. The patient grew rapidly worse, and died next morning, April 14th, at 4 A. M. about 98 hours after delivery.

Autopsy, 29 hours after death. The operation was performed by Dr. Goddard, in the presence of Drs. Huston and Bond; and this account of it is chiefly taken from Dr. Goddard's notes. Abdomen alone examined. On opening the peritoneal cavity, a quantity of fœtid gas escaped, which occurrence Dr. G. observed he had never met with, except in cases of perforation of the intestines, or as a result of putrefactive fermentation. That part of the peritoneum, where this gas was contained, was dry and glossy, as if it had been hung up in the open air—colon much distended and very low in the abdomen. Upon carefully raising the omentum majus, the whole of which was gangrenous and fœtid, a black mass, about two inches long and three quarters of an inch wide, was brought into view, one end of which passed into an opening in the fundus of the uterus. At first view this looked like a coagulum of blood, which in some parts had began to be organized, but which, being drawn out and washed, proved to be a portion of the fœtal membranes, with some remains of placental fibres, and the debris of a coagulum of blood—the whole being in an advanced state of putrefaction. The uterus was next examined, and found to be lacerated at the left extremity of the fundus, above and very near the junction of the Fallopian tube. The rupture in the peritoneum was small—about three-fourths of an inch in length, and entirely filled up by the membrane before alluded to. The laceration of the proper substance of the uterus was greater, and its edges were covered with a coagulum partially organized. The *lining of the uterine cavity elsewhere looked well.* The peritoneum showed traces of high inflammation in several parts—about the stomach, among the small intestines and especially at the pelvic region, but appearing comparatively healthy at the anterior portions of the abdomen. There was very little effusion into the peritoneal cavity—there

was a small quantity of blackish fluid, with flakes of pus floating in it, in the most dependent portions of the abdominal cavity.

There is, therefore, reason to believe that, when the laceration took place, it was chiefly in the uterine substance, the peritoneum resisting; that the unbroken membranes protruded, like a hernia, through the aperture into the abdominal cavity;—that the contraction of the uterus, after the delivery of the child, closed so firmly upon these, as to strangulate them, and to resist the efforts to withdraw them, during the operation for extracting the placenta. This examination explains the difficulty attendant upon the delivery of the secundines; for although the placenta was in no part detached from the uterus when the hand was first introduced, still there did not appear to be any preternatural adhesion or growing of the placenta to the uterus; but the chief difficulty arose from the extraordinary strength of the fœtal membranes, and their inextricable confinement. The revelations of this examination, were especially gratifying to the doctor, as he had apprehensions before this, that although the labour was brought on by an accident, the febrile and inflammatory symptoms and the fatal termination, might have been the consequence of the operation of extraction; although he had proceeded with such caution, that he was satisfied it could have resulted only from the irritation of the protracted operation, and not from any laceration, or other violence done to the part.

Art. XIX.—*Lectures on the more Important Eruptive Fevers, Hemorrhages, and Dropsies, and on Gout and Rheumatism.* Delivered in the University of Pennsylvania. By N. Chapman, M. D., Prof. of the Theory and Practice of Medicine, &c. &c. Philadelphia, Lea & Blanchard, 1844: pp. 448, 8vo.

The present volume of lectures, by the distinguished Professor of the Practice of Medicine in the University of Pennsylvania, is not less interesting than the one which preceded it, (see No. of this Journal for April last,) and will be equally acceptable to the profession. The topics discussed, are the more important eruptive fevers, hemorrhages, and dropsies, with gout and rheumatism.

The author treats, under the head of exanthematous fevers, of small-pox, (natural and inoculated,) chicken-pox, cow-pox, varioloid, measles, and scarlet fever; under that of hemorrhages, of hæmoptysis, epistaxis, hæmatemesis, hæmaturia, uterine hemorrhage, hemorrhoids, cutaneous hemorrhage, and purpura hæmorrhagica; under that of dropsies, of ascites, encysted dropsy, ovarian dropsy, dropsy of the chest, dropsy of pericardium, hydrocephalus, (acute, subacute, and chronic,) and anasarca; and finally, we have two very important diseases of the muscular or fibrous system, gout and rheumatism, in all their various forms, fully described.

Those who examine these volumes, with an expectation of finding in them a catalogue of every remedy that has ever been tried for the cure of each disease —of every suggestion of the tyros in the profession, ambitious of gaining a temporary notoriety by connecting their name with some pretended novelty in therapeutics, or long since repudiated article of the materia medica, will find them deficient. But, in our estimation, they possess a higher order of merit. They embody the results of the long and extensive experience of one acknowledged to possess remarkable tact in diagnosis, copious resources as a practitioner, and to be unusually happy in selecting the remedy best adapted to the circumstances of each individual case. The practitioner of medicine will know how to value these volumes.

SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

1. *Colouration of the Blood.*—(*L'Experience*, 4 July, 1844.)—M. SCHEERER is led by his experiments to refer the difference in colour between venous and arterial blood to the different refractions of light produced by the different forms of the corpuscles; their form being biconcave in arterial blood, and spherical or biconvex in venous blood. The microscope shows, that oxygen and the neutral salts, in producing the bright red colour of the blood, cause the blood-globules to assume a biconcave form; whilst water and carbonic acid, which render the blood dark, also cause the blood-globules to assume a spherical or biconvex form.

2. *Researches on the Structure of the Uterus.*—A recent No. of the "*Journal de Chirurgie*" contains an account of some interesting researches on the anatomy of the uterus, by M. JOBERT DE LAMBALLE.—M. Jobert's inferences from his researches are as follows:

1st. The proper tissue of the uterus is not fibrous yellow tissue, but muscular tissue, and that at all periods of life, and in all animals.

2d. In pregnancy the uterus is merely in a state of muscular hypertrophy.

3d. The uterus is formed by one muscle and not by several.

4th. There exists an uterine mucous membrane, but without epithelium.

5th. The direction of the uterine fibres shows how they act in freeing the uterus from its contents. The longitudinal layer of fibres, which originates at the fundus and is inserted into the neck and vagina, tends to diminish the length of the uterus; whilst the semicircular fibres by their action diminish its cavity in every sense. The longitudinal and annular fibres of the Fallopian tube explain the mode of progression of the product of conception, and those which surround the uterine vessels appear to diminish, by their contraction, the rapidity of the circulation, and to prevent hæmorrhage during parturition.

The fibres of the single muscle, which forms the uterus, are arranged, according to M. Jobert, in layers, and present the following direction:

The longitudinal superficial fibres, which may be called median from their position, are seldom seen on the anterior surface, but are constantly met with on the posterior, where they constitute two thin superincumbent layers.

1st. Posteriorly, they begin at the fundus of the uterus, and end at the uterine exremity of the vagina, to which they become attached, with the exception of some few that terminate on the neck, above the opening of the vulvo-uterine canal. They adhere by one surface to the peritoneum, by the other to the oblique fibres.

2d. The anterior superficial fibres do not pass along the entire extent of the uterine parietes, but cross each other before they arrive at the round ligament of the opposite side. Some contribute to form it, whereas others pass behind,

and terminate on the lateral regions, where they cross also those of the posterior region.

3d. There are other superficial fibres, only evident during pregnancy, which are destined to the Fallopian tubes and to the ovarian ligaments. Some originate at the fundus of the uterus, unite to those which contribute to form the Fallopian tubes, and pass on to the anterior part of the ovarian ligament. Others, more numerous, originate from the posterior surface of the fundus of the uterus, and pass on to the same ligament. Lastly, a few transversal fibres from the posterior surface form its inferior part. The numerous fibres which pass on to the Fallopian tubes originate at the fundus of the uterus, and form a thick fasciculus, which divides into two secondary fasciculi destined one to the ovarian ligament, the other, more voluminous, to the Fallopian tube. Some fibres separate from the common fasciculus, and lose themselves in the cellular tissue which separates the Fallopian tubes from the round ligament.

The deep fibres are very visible when the uterus has undergone rather lengthened boiling. They all evidently present a semi-circular direction, are rather oblique, and only differ from those above described by their smallness, and by their belonging exclusively to the body and to the neck of the uterus. They cross each other on the median line anteriorly and posteriorly, as also on the sides, so as to produce a kind of net-work. Their thickness varies as they approximate the internal surface of the uterus, where they appear to describe circles exterior to the internal membrane. There are annular fibres along the Fallopian tubes, which do not entirely encircle it and are deep-seated. Lastly, the blood-vessels are encircled by fibres similar to the deep muscular layer which surrounds the intestinal canal.

The uterine neck is formed by fibres which constitute semicircles, and decussate without mingling. This semi-circular arrangement is more evident in women who have had children than in others. Do the fibres of the neck mingle with those of the superior portion of the vagina? It has appeared to me that the vagina attaches itself to the proper substance where the mucous membrane passes from the neck itself to the os tincæ. This insertion terminates abruptly anteriorly; posteriorly, on the contrary, it is continuous in every case with the longitudinal fasciculus.

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3. *On the Products of the Oxidation of Protein in the Animal Organism.* By M. Mulder.—As the purely chemical details of this long and interesting paper would prove of little value to any but a chemist, we confine ourselves to the important conclusions which M. Mulder draws from them.

When fibrin is boiled in water in contact with atmospheric air, oxygen is absorbed in quantities proportioned to the duration of the ebullition, so that at length the whole of the fibrin is converted into an oxide of protein. It follows from this that when meat is boiled or roasted, the nourishment is not introduced into the organism in the state of protein, but in that of two of its oxides, one the binoxide, being hard and insoluble, the other in the state of the soluble tritoxide. "These two substances," says Mulder, "are both absorbed from the digestive tube unchanged in composition." The tritoxide, or the portion rendered soluble by combination with oxygen, exists in the extract, or soup, of meat. As albumen does not undergo the same changes by ebullition, a tritoxide only being formed, an essential difference exists between giving roast or boiled meat and coagulated albumen as nourishment.

In inflammation, the blood contains a large quantity of the binoxides and tritoxides of protein. The substance which M. Bouchardat detected in the fibrin of blood, and named epidermose, characterized by insolubility in diluted hydrochloric acid, is, M. Mulder states, composed of the binoxide of protein. In fact, M. Scherer has remarked, that fibrin in contact with oxygen absorbs a quantity of that gas, not replaced by an equivalent proportion of carbonic acid gas. He has also remarked, that the fibrin of arterial blood, the inflammatory crust, that obtained by beating blood with a stick, that dried in the air, or macerated in alcohol, do not dissolve in the weak solution of muriatic acid; that,

consequently, they consist of the binoxide of protein. In all these, therefore, the protein has become richer in oxygen than when it existed in the state of fibrin. It results from this, that protein may become hyperoxygenated while circulating with the blood. M. Mulder thinks it likely this oxygenation during life is confined to the fibrin alone, and does not extend to the albumen, seeing that when the albumen is boiled, it only forms a tritoxide, but no binoxide. These oxides of protein are found in the healthy blood at all times, but are in much larger proportion during inflammation. The hæmatosin of the blood is not, therefore, the only oxygen carrier, seeing that the fibrin at the lungs is converted into the binoxide of protein, (or epidermose of Bouchardat,) and into the tritoxide, (or gelatin of Bouchardat.) As these principles exist in inflammatory blood in much larger proportions than in healthy blood, it follows that the blood, during inflammation, contains more oxygen, and that a greater amount of oxygen is consumed. It would appear, from M. Mulder's and M. Bouchardat's researches, that it is the tritoxide (or gelatin) which is procured from the fibrin in largest quantities during inflammation; and, as Mulder's researches show that albumen is as easily resolved into this substance by boiling as fibrin itself, it seems to be a just conclusion that, during inflammation, this tritoxide is formed from albumen as well as fibrin.

All remedies which are intended to subdue inflammation must, therefore, act by tending to diminish the quantity or prevent the formation of the oxy-protein; and the known antiphlogistics undoubtedly act in this way. Blood-letting, by directly diminishing the quantity of the oxy-protein, acts as an antiphlogistic. Purgatives act in the same way, by increasing the secretions into the digestive tube.

M. Mulder thinks that the presence of these oxides of protein in arterial blood explains how the large amount of oxygen absorbed from the air may be disposed of—an amount quite disproportioned to that of the hæmatosin, supposed, till now, to be the sole oxygen carrier. These oxides of protein are carried by the circulation to the extreme parts, and there, in the act of secretion or nutrition, deposit their oxygen, which unites with matters already existing in the body, and forms the carbonic acid given off during expiration. Further experiments must determine whether, after this, the protein returns by the veins as fibrin or albumen. If the oxides of protein, once formed, do not, in circulation, resume the forms of fibrin or albumen, then they will serve for the formation of the cellular tissue, of the tendons, of cartilage, of the corneous system, &c., whilst the unchanged fibrin and albumen will contribute to the formation of muscle. In this case the functions of the lungs and liver will be to eliminate from the body those substances taken as aliment which do not furnish protein or its oxides.—*Edinb. Med. and Surg. Journ.*, Oct., 1844, from *Annalen der Chem. und Pharm.*, vol. xlvii.

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4. *On the Causes which determine the Sex in Generation.*—Many facts have tended to prove that, in the act of generation, it is the individual who is the strongest who regulates the sex of the progeny. M. Moreau, from long observation, has not only arrived at this conclusion, but thinks that, to a certain extent, a boy or a girl may be got at will by weakening or strengthening the father or mother previous to the act of generation. M. Moreau states that, acting on this rule, he has seen in numerous cases his advice followed by the desired effect.—*Ibid.* from *L'Expérience*, 4 July, 1844.

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5. *Influence of Heat and of Stoves on Animal Life.*—The experiments of M. Magendie have demonstrated that the temperature of no animal is capable of being increased beyond 9° Fahr., whatever be the temperature of the air or fluid to which it may be exposed. Thus two rabbits, whose natural temperature is 102° Fahr., were severally placed in stoves, the one heated to the temperature of 140°, the other to that of 212°. After a short while the temperature of both rabbits rose to 111°, that which was in the hottest stove being the first to attain that temperature. In none of his experiments did they ever acquire

more than 9° of heat. The same occurred with birds. When the animal acquires this temperature it soon dies; in which case the arterial blood is black as the venous blood, does not redden on exposure to the air, and has lost its coagulability.

The increase of temperature seemed to be attained chiefly through the skin, for when the head of an animal was confined in the heated stove, so that it breathed the hot air, the elevation of temperature was much less in an equal period of time than when the body was exposed to the heated air, and the head was out of the stove. Thus, a dog whose body was within the stove, but the head out, lived only 22 minutes; but another, whose head was within the heated stove, and the body out, lived 40 minutes. An animal placed in a dry heated stove loses weight, but the amount is proportioned to the length of time the animal remains within it, and not to the degree of heat, and the loss is no greater at a temperature of 212° than at 140° in an equal space of time. In stoves heated with moist air, M. Magendie, on the other hand, found, that instead of losing weight they often gained weight. He found, however, that stoves with heated moist air were borne with greater difficulty than those with hot dry air, the animals dying in them in a much shorter time.—*Ibid.* from *Ibid.*, 27 June, 1844.

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6. *Researches on Alimentary Substances.*—MM. Bernard and Barreswil ascertained that, by injecting various aliments dissolved in gastric fluid into the veins of animals, they could ascertain their comparative nutritive powers. If the substance was capable of being assimilated, they found that it disappeared entirely from the blood, and could not be detected in the secretions, but that if it was not assimilated, it was passed off by the secretions, as by the urine. They found, that if alimentary substances were injected into the veins without having previously undergone artificial digestion in gastric fluid, they were not assimilated, but were passed off in their original state by the urine. When alimentary substances were mixed with gastric fluid, and artificially digested for a few hours previous to being injected into the veins, they were found to be assimilated as perfectly and as completely as if they had been introduced into the stomach. The first series of the experiments are alone as yet published. They refer to sugar, albumen, and gelatin.

Aqueous solutions of sugar, of albumen, and of gelatin from isinglass were injected severally into the jugular veins of three dogs. After three hours the urine of each dog was examined. In that of the first dog the sugar was found unchanged; in that of the second, the albumen was quite distinct; and in that of the third, the ordinary reagents manifested the presence of gelatin.

Similar quantities of these three substances were then digested at a blood heat, for about six hours, with recent gastric fluid taken from the stomach of a dog, and were then severally injected into the veins of three dogs. The urine was drawn from the bladders, and examined after three hours. In the urine of the dog which got the sugar, no trace of sugar could be detected. In the urine of that one which got the albumen, no trace of albumen was perceived. But in that of the dog which had the gelatin, that substance was found present in appreciable quantity.

Three dogs were then fed for some time with these substances; one with sugar alone, the second with albumen alone and the third with gelatin. The sugar and albumen could never be detected in the urine, but the gelatine was so invariably.

In order to test these last results still more accurately, MM. Bernard and Barreswil repeated them on themselves. After fasting they took sugar, but never could detect its presence in the urine. In a similar manner they took albumen, but it also could not be detected in the urine. When, however, they took gelatine, they always found that it was thrown off along with the urine.

May not this last fact explain why gelatin has been found experimentally not to contribute to nutrition?—*Ibid.*, fom *Journ. de Pharmacie*, June, 1844.

7. *Researches concerning the Importance of Bile in the living Animal Organism.*—We are indebted to Prof. Schwann for an account of some interesting experiments, instituted for the purpose of ascertaining whether the bile is really essential to life. These were so conducted as to allow that fluid to flow out of the body without ever getting into the bowel. The means employed was ligature of the ductus choledochus.

The author contends that the experiments of Brodie, Tiedemann, and Gmelin, Leuret and Lassaigne, are of no physiological value as regards the present inquiry; inasmuch as if the ductus choledochus be simply tied, not only is ingress of bile into the bowel prevented, but the secretion is likewise stopped. Now the secretion may serve a double end in the animal economy; first, to remove certain matters from the blood; second, to elaborate a fluid destined, like the gastric juice, to exercise some peculiar action upon the nutriment. That the bile contributes to effect a change in the composition of the blood cannot be denied. Accordingly, if the depurative process performed by the liver be arrested, death must follow as surely as after ligature of the ureters.

To obviate the above difficulty, the author, while he applied the ligature, formed at the same time a fistula of the gall-bladder, having its external opening in the abdominal integument. Under such circumstances, if death ensued, it must be from absence of bile within the bowel, for the secretion is permitted to go on without interruption: those cases, of course, being excepted where a fatal termination has been the immediate result of the operation.

The following important practical inferences may be drawn from Prof. S.'s experiments. Out of 18 dogs whose ductus choledochus was tied, and fistula of the gall-bladder at the same time formed, two alone survived. In both, when killed, the ductus choledochus was found re-established. Of the other 16, ten died in consequence of the operation. In the remaining 6 death could not be assigned to that cause, but only to absence of bile in the intestinal tube. It may be, therefore, concluded that the bile is of vital import; that the liver does not merely serve, through the biliary secretion, to carry off certain effete matters from the blood, but that it at the same time elaborates a fluid essential to the animal economy. This is borne out, not only by a consideration of the six cases where the animals died without any other appreciable cause, but, likewise, of those in which the duct became restored and the dogs lived. There the emaciation continued up to a certain period, no doubt that of the re-establishment of the ductus choledochus; in one, symptoms of marasmus supervened exactly resembling those in dogs dying from want of bile, but which completely disappeared on the integrity of the conduit being regained. The ten cases in which another cause of death was discovered cannot be received in evidence, as it is probable that the privation of bile partly contributed to shorten life. This must be taken into account in every instance where an animal outlives the operation three days, as the effects of absence of bile are already appreciable before that date; if wasting occur earlier, it is probably the direct effect of the operation.

Death takes place even when the dogs lap and swallow the effluent bile; it cannot, therefore, be reckoned a substitute for that which, in the natural course of things, passes into the duodenum. On the other hand, the ingested bile did not seem to impair digestion.

Young dogs die as well as old ones, and probably sooner; thus, one died in seven days; and one, although eventually saved by reproduction of the biliary canal, manifested by the tenth day those marked symptoms of faulty nutrition which do not usually show themselves till a later period.

Death takes place amid symptoms of inanition or defective assimilation,—emaciation, muscular weakness, tottering gait, falling out of the hair; and these are the more prominent the longer life is prolonged after the operation.

There is considerable variation as to the period at which animals die from want of bile; thus, one young dog died within seven days, and another not before two months and a half had elapsed. It would appear, as a general rule, that adult dogs perish from want of bile in from two to three weeks after

the operation. Now it is known that dogs can live for nearly a month without any kind of nourishment. (*Müller's Physiology*, Bd. I., p. 477.)

In order to account for those cases in which, after the animals had apparently recovered, there was a renewal of the emaciation, and death, it may be assumed that at some advanced period, in consequence of local injury by a blow or leap, the newly-formed texture has been ruptured, leading to inflammatory exudation within, and closure of, the previously pervious canal, whereby the supply of bile has been cut off.

The following is the author's summary of results:—

1st. The bile is not a mere excrementitious matter, but is, after being secreted, of vital necessity.

2d. Bile is alike indispensable to young and old animals; indeed, the former seem to bear its want less than the latter.

3d. When the bile does not get into the bowel, its absence is generally perceptible in dogs by diminution of weight about the third day.

4th. When the bile is prevented from reaching the bowel, adult dogs usually die after two or three weeks, sometimes earlier.

5th. Death is preceded, as above stated, by signs of deficient nourishment, great wasting, muscular debility, falling out of the hair, together with slight convulsions during the agony.

6th. The bile which naturally flows into the duodenum cannot be replaced by that which the animals lap and take into the stomach.

7th. The bile so swallowed does not seem to interfere with the process of digestion.

The author proposes to extend his experiments, with the view of ascertaining whether the efficacy of the bile depends upon its being a solvent of certain articles of nutriment.—*London Med. Gaz.*, Aug., 1844, from *Müller's Archiv.*, 1844, No. 2.

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8. *Gunshot Wound of the Anterior Cerebral Lobes.*—Dr. Blaquiere, of Mexico, in a communication to the French Academy of Sciences, gives the details of a gunshot wound, involving the anterior cerebral lobes, which presented considerable physiological interest. A child playing with a loaded pistol accidentally discharged it. The ball struck his younger brother, four years and a half old; entered at one temporal region, came out at the other, and finally spent itself against the wall of the room. For six-and-twenty days after the accident, the child retained the entire control of its intellectual faculties. The memory and judgment were not in the least impaired; the child was as gay as before the accident, had appetite for food and slept tolerably well. The wounds were both situated about an inch and a half below the external commissures of the eyes. On the twenty-sixth day, symptoms of cerebral inflammation appeared, and the child died on the twenty-ninth. On examination, the anterior and superior region of the two hemispheres was found to have been traversed by the ball. The ventricles were intact. The entire sinus was the seat of suppuration; the meninges were inflamed. M. Blaquière considers this case to be fatal to phrenological doctrines, as the seat of several important phrenological faculties was destroyed, and yet no functional lesion whatever of the brain was observed.—*Comptes Rendus.*

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9. *Researches on the Chemical Composition of the Pulmonary Parenchyma and of Tubercles.*—These researches were undertaken by M. Felix Boudet, a well-informed chemist, in order to ascertain, if possible, the relation which exists between the normal composition of the lungs, and its pathological composition, when the seat of tubercles. According to M. Boudet, the parenchyma of the lungs, freed as much as possible from blood and extraneous substances, is formed of the following chemical elements:—1st, a substance susceptible of transformation into gelatin by ebullition in water, (cellular tissue;) 2d, a substance soluble in cold water, precipitated by nitric acid, coagulated by heat, containing albumen and hematosin; 3d, a substance analogous to casein; 4th,

fibrin; 5th, free oleic and margaric acids; 6th, oleate and margarate of soda; 7th, cerebric acid; 8th, lactic acid; 9th, cholesterine, $\frac{5}{1000}$ of the weight of the lungs dried at 100°; 10th, water, the weight of which is to that of the substance of the lungs dried at 100° : : 82 : 18. In other words, the lungs dried at 100° are reduced to one-fifth of their primitive weight. The ashes of the lungs contain a considerable quantity of chloride and sulphate of soda, a small quantity of phosphate and carbonate of lime, and traces of silex and of oxide of iron.

If this analysis be compared with those which Berzelius and Braconnot made of muscular tissue, the difference will be found to be slight, and to have reference, principally, to the presence in the lung of several fatty acids, free, or combined with soda, and to the presence of cholesterine, and of a substance soluble in boiling alcohol, precipitated by cold—viz., cerebric acid. These differences are not very important, unless it be proved that they are constant and inherent to the nature of the tissues analyzed. Nevertheless, it is clear that the parenchyma of the lungs contains a considerable proportion of fatty substances, and more especially of cholesterine, which does not exist in muscular tissue.

The results of M. Boudet's analysis of pulmonary tubercles are confirmatory of the previous analyses of Wood and Preuss. Pulmonary tubercles contain, according to him,—1st, albumen; 2d, casein; 3d, a substance presenting the characters of fibrin; 4th, a substance soluble in boiling alcohol, (cerebric acid;) 5th, oleic and margaric acids; 6th, saponified fat; 7th, lactic acid; 8th, lactate of soda; 9th, cholesterine, 0.045, or $\frac{1}{20}$th of the weight of the dry tubercles. The ashes, like those of the lungs, contained soluble salts; chloride of sodium and sulphate of soda; insoluble salts; phosphate and carbonate of lime; silex and oxide of iron.

The composition of mesenteric tubercles, as also that of the tubercles of the bronchial glands, was the same.

The most remarkable fact demonstrated by the above analysis, is the large quantity of cholesterine which tubercles contain. This substance is also found in biliary calculi, in tumours of the brain and of the uterus, in ovarian cysts, and in most of the pathological productions developed in the parenchyma of our organs, thus showing a kind of analogy between the composition of pathological productions.

The development of an excess of fatty matter in the organization is also remarkable, when we consider that the physiological function of the fatty substances which exist in the blood appears to be to contribute to the production of animal heat, by the slow combustion of the carbon which they contain, and to become converted into carbonic acid during respiration. This being the case, it is easy to understand how imperfection in the respiration may coincide with an excess of fatty matter in the organization. The fatty state of the liver in many patients labouring under phthisis is worth noticing, in connection with these ideas. The following is the analysis of the liver thus degenerated, as compared with the healthy liver:—

	Fatty liver.		Healthy liver.
Water,	55.15	...	76.39
Animal matter, dried at 100°,	13.32	...	21.00
Saponified fat,	30.20	...	1.60
Cholesterine,	1.33	...	0.17

M. Boudet has comprised in his researches the composition of tubercular matter in its subsequent transformations. When softened, it presents an alkaline re-action; treated by water, it gives a dissolution partly coagulable by heat. After the separation of the albumen, there remains a liquid which is precipitated by acetic acid, like milk, and which, evaporated at a mild heat, gives rise to the formation of pellicles similar to those which form on milk. In order to fully ascertain the identity of this substance with the casein of milk, M. Boudet precipitated comparatively, by acetic acid, a certain quantity of cow's milk,

and of the liquid obtained from tubercles. The two precipitates, placed in contact with carbonate of barytes, in order to saturate the excess of acid, and subsequently with water, gave two liquids perfectly similar in all their properties. Calcareous tubercles present a composition very similar to that of the residue of the combustion of tubercles themselves. They contain, however, but a small proportion of phosphate and carbonate of lime, whereas they present 70 per cent. of soluble salts; chloride of sodium, phosphate and sulphate of soda. It is rather singular that a mass of soluble salts should thus remain insoluble in an organ abundantly supplied with fluids.

In one of the lungs examined by M. Boudet, he found a considerable quantity of copper, enough to form a small button. The patient was a man sixty years of age, and stated, in the hospital register, to be an engineer.

M. Desportes remarked, that too much importance ought not to be placed, without farther research, on the chemical theories promulgated by M. Boudet. It must not be forgotten, that the formation of fat in the human economy was never greater than when all the functions were in perfect health, especially that of respiration—as, for instance, in children. In phthisis, the deposit of fat was by no means general, but confined to some few parenchymatous structures.—*Lancet*, Nov. 16th, 1844.

MATERIA MEDICA AND PHARMACY.

10. *Cotton as a Dressing to Blisters.*—Prof. Seidlitz employs carded cotton as a dressing to blisters in order to produce their rapid cicatrization. He first evacuates the serum, and then covers the part with a layer of cotton, which he allows to remain until the cure is accomplished.—*Journ. de Med. et de Chirurg.*, Aug., 1844, from *Petersburger Journal Fuer Natur und Heilkunde.*

11. *Mode of preparing the Valerianate of Zinc.* By M. Devay. (*Gaz. Méd. de Paris*, June 29, 1844.)—The fresh roots of valerian are distilled, when the valerianic acid comes over along with the essential oil. This oil is separated, and the distilled water has its acid saturated by carbonate of potash. Solution of caustic potash is also agitated with the essential oil, and both fluids are mixed together. The valerianate of potash not being volatile, allows the most of the water to be driven off, as well as that portion of the volatile oil which has not united with the alkali. When the valerianate of potash is sufficiently concentrated, it is introduced into a small retort, and a sufficient quantity of dilute sulphuric added to unite with the potash. Heat is then carefully applied, and the volatile valerianic acid distils over in a pure state, partly dissolved in a small quantity of water, partly as an oily hydrate. It is then mixed with carbonate of zinc, and the union aided by heat. It is then filtered, and as the fluid cools the crystals of the valerianate of zinc are deposited. The mother liquor is to be evaporated till all the salt is obtained.

12. *Croton Oil Plaster.*—M. Bouchardat recommends the following method of preparing croton oil plaster. Melt eighty parts of gum diachylon plaster at a very gentle fire, and, when it is semi-liquid, mix with it twenty parts of croton oil. The plaster which results is to be spread thickly on muslin. It will produce considerable irritation of the skin, and may be employed in all cases where revulsives are required. It does not cause such severe pain as many other counter-irritants; and it may be applied over an extensive surface, so that a derivative action may be established proportional to the irritation which is to be combated,—an indispensable condition in the employment of these heroic remedies. M. Bouchardat is fully of opinion that the croton oil plaster will be found available in the treatment of many chronic diseases, both of the respiratory apparatus, and of the abdominal viscera.—*Annuaire de Thérapeutique*, 1844.

13. *Lithontriptic action of the Gastric Juice.*—M. Millot has stated that the gastric juice, even when diluted with an equal portion of distilled water, possesses the property of disintegrating vesical calculi, so as to render them capable of being crushed by the slightest effort or pressure of the finger, by effecting the solution of the cement of organic matter which unites the layers of the calculus. M. Leroy d'Etiolles observes, that a similar idea was put forth by Sennebier in his translation of Spallanzani's work, when treating of digestion; he has ascertained that this liquid has no action on the calculi of oxalate of lime, scarcely any on those of uric acid, and very slight on those of phosphate of lime, magnesia, and ammonia. He has not observed any effects worthy of notice except upon the alternating calculi.

These effects are thus explained by M. Bouchardat:—The organic matter which cements the calculi of oxalate of lime and uric acid, is generally mucus which is not modified by gastric juice. The alternating calculi, on the contrary, having almost all been deposited in a diseased bladder, an albuminous substance is combined with the mucus, and this is attacked by the gastric juice, so that the layers of the alternating calculi separate with facility. Setting aside, therefore, the great difficulty that would be experienced in obtaining sufficient quantities of gastric juice, the effects to be expected from it are limited and equivocal. But M. Bouchardat adds, he is convinced that the question of lithontriptics, although at present but little advanced, is yet capable of a fortunate solution, and he hopes in a future Annuaire to return to this subject.—*Bouchardat, Annuaire de Thérapeutique*, 1844.

[The late Prof. Dorsey, of the University of Pennsylvania, in his inaugural thesis, published in 1802, relates several experiments instituted with the view of determining the solvent power of the gastric juice on calculi in the bladder. He was led to believe that this power was so feeble that the stone progressed almost as fast as the solution, and that its use would not supersede the necessity for an operation.]

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14. *Cortex Frangulæ.*—Dr. Gumprecht, of Hamburg, has lately directed attention to this remedy. He observes, that it was known to the ancients as a valuable cathartic, and that Mathiolus advised the non-employment of the fresh bark on account of its great tendency to excite vomiting. Dr. Gumprecht's attention was first drawn to this remedy by the exceedingly happy cures which he saw effected with a nostrum, (the active principle of which was found to consist of the *rhamnus frangula*,) in hæmorrhoidal complaints. Dr. G. has now administered this remedy for twelve years, with very favourable results, in chronic abdominal complaints, particularly when combined with venous plethora and habitual obstruction of the bowels. The remedy invariably occasions copious evacuations, at the same time that it displays very powerful diuretic effects. It is best suited to such individuals as suffer from habitual constipation: (Dr. G. has proved this in his own person for the last ten years.) He employs the dried bark of the old tree, in the form of decoction, and asserts that it has no drastic nor heating effects, but, on the contrary, it occasions soft and moderate evacuations. The ancients generally administered it combined with aromatic substances. Dr. G. orders an ounce and a half of the dried bark to be boiled in two pints of water for two hours. When boiled down to one pint, the decoction is infused on three or four drachms of orange peel, and three drachms of pounded caraway seeds. In some cases, an ounce or an ounce and a half of Epsom salts may be dissolved in the decoction. In hæmorrhoidal complaints he substitutes two drachms of *milfoil*, with three drachms of caraway seeds, for the orange peel; and generally orders a cupful to be taken in the evening. By the next morning two or three free evacuations ordinarily ensue. Should this not be the case, the same dose is repeated at eleven o'clock, A.M. A smaller dose must be given to individuals of irritable and feeble habits, or to those who have a tendency to diarrhœa. In abdominal complaints, Dr. G. employs the *decoct. frangul.* for from three to six weeks; in habitual obstruction two or three cupfuls are given during the week. This decoction may be preserved for a very

long time without losing its efficacy, in well-stopped earthen-ware jugs.—*Med. Times*, Oct. 12, 1844, from *Buchner's Repertorium.*

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15. *Mode of preparing some Narcotic Extracts in small quantities.* By M. SCHEIDEMANDEL.—Dry the herb, as, for instance, *hyoscyamus*, in a stove, at a moderate heat, and then powder. Put about four ounces of the coarse powder into a glass funnel, loosely stopped at the lower end with cotton; place over the powder a piece of white filtering paper, and upon the paper a layer of well washed sand, previously purified by muriatic acid. Pour alcohol, of 30 per cent., gradually into the funnel till the powder is partly moistened. Then cease, and, in half an hour, you will see that the liquid has slowly penetrated the whole mass, and the alcoholic solution will fall in the form of dark green drops into the vessel, over which the funnel is placed. When the dropping ceases, begin again instilling small quantities of alcohol, about half an ounce every quarter of an hour, and proceed as above till you have used eighteen ounces. Cover over the solution with a glass plate for the night, and begin next morning by infusing pure water, continuing till the liquid, which passes off, is no longer green, but brown; that is to say, till all the alcoholic solution has become exhausted, and nothing but a watery extract remains. As soon as you perceive this change, substitute a new vessel for the one containing the alcoholic extract. Continue during the day with the watery infusion, till the dripping fluid commences to be transparent; then pass through a small quantity more of spirit, and cover it over for the night. The alcoholic extract is now to be filtered and distilled in Gundermann's small steam apparatus, until a few ounces only of alcohol remain. Then put the beautifully green and thickish alcoholic extract, which results, into a porcelain dish, together with the watery extract, reduced to the consistence of syrup, and evaporate the whole at a gentle heat by the spirit lamp. Thus, an extract will be obtained, perfectly soluble in water, of a beautifully green colour, and certainly unsurpassed in efficacy by any extract prepared by other methods. The same process may be adopted in the preparation of *extr. belladonn, digital, conii, &c.* From four ounces of coarsely powdered hyoscyamus I obtained one ounce and six drachms of extracts.—*Ibid. from Ib.*

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16. *On a New Method of making Medicated Tinctures.*—Dr. H. BURTON describes in the *Lond. Med. Gaz.*, (Aug. 30, 1844,) a method for making medicated tinctures, which seems to have advantages, not only over the old process, but also over the more recent French one of percolation. In the ordinary process of making tinctures, maceration and filtration are both necessary, which cause both loss of time and a waste of spirit. By Dr. Burton's process, maceration and filtration are simultaneously conducted; the solid being loosely packed in a bag, which is suspended just under the surface of the solvent, so that all parts of it are immersed, and a space left between its lowermost end and the bottom of the macerating vessel. In this process no shaking or stirring is requisite;—"as soon as the spirit begins to act on the solid, a coloured tincture will be seen to gravitate through the colourless and lighter spirit by which it is surrounded. In proportion to the rapidity with which the heavier tincture gravitates, a corresponding bulk of lighter spirit ascends, and is carried or forced into contact with the solid suspended at its surface. Thus, in a short time, a descending and ascending current will be established throughout the fluid, and will continue to move as long as the solid contains any soluble extract, or until the solvent has become saturated, and incapable of dissolving an additional quantity."

One of the best illustrations of this process, the author observes, is afforded by the phenomena which may be observed during the making of tincture of kino, with the proportion of ingredients directed in the London Pharmacopœia; a brief description of which will serve as an explanation of this new application of a principle long familiar to scientific chemists.

Take, for example, 126 grains of kino, in small fragments or coarse powder, and inclose them loosely in a calico bag, large enough to contain as much again, and secure the mouth of it with a fine string. Next choose a glass bottle, stoppered,

with a wide mouth capable of holding four fluid ounces of spirit, and pour into it three fluid ounces of spiritus rectificatus, having a specific gravity of 0.838 at 60°. Then suspend the bag of kino by its string, attached to the neck of the bottle, just below the surface of the spirit, and close the bottle.

The bottle should be left at rest, and almost as soon as the kino is immersed its dissolution commences; in proof of which a bright red stream of tincture begins to descend, and for a short time remains at the bottom of the bottle, distinct from the colourless spirit above and around it; but in the course of a few hours the red stratum will have increased in thickness, and eventually ascended to the upper surface.

The tincture of kino thus produced will be perfectly clear, and its physical properties at the end of three or four days will correspond precisely with a tincture made with kino of the same quality, and spirit of equal density, mixed in the same proportions, and macerated together in a bottle for the space of fourteen days, according to the old method.

"Fine flannel or calico," Dr. B. says, "will answer the purpose of a filtering bag very well; and in this the dry solids should be loosely packed, so as to allow space enough for their expansion on being immersed in the spirit, and for the circulation of the latter through them."

The same plan may be followed in making infusions; but the macerating bag should be open as the coffee-biggin, and the boiling water poured on the solids to be infused in a vessel having a spout through which the infusion may be found when cold.

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17. *Caroub of Judea in Asthmatic affections.*—The caroub is an accidental production like the gall-nut, resulting from the puncture of the pistacia terebinthus by an insect named aphis pistacia. It forms a species of capsule, the parietes of which are about the thickness of the head of poppies. It has an aromatic odour, and a resinous taste. It has been used for the last thirty years by the physicians of Vienna in the treatment of asthma, catarrh, bronchorrhœa, &c., and was first introduced into use by Dr. Wertheim. Dr. Hoffman, in a pamphlet lately addressed to the French Academy of Sciences, states, that he has found it principally beneficial in the treatment of patients of a nervous and lymphatic constitution, and in the early stage of the disease. M. Martin Solon, in his report to the Academy on the above-named paper, states, that the article is similar to the resinous and balsamic medicines in general use, and thinks that it may be usefully substituted for them, owing to its agreeable flavour. He says that the best way to use it is in fumigations, dry or moist.

MEDICAL PATHOLOGY AND THERAPEUTICS, AND PRACTICAL MEDICINE.

18. *Results of Observations on Small-pox in persons who had been vaccinated.*—These observations were made by Dr. Lossette, in the small-pox ward of the great hospital at Milan. Dr. L. first endeavoured to ascertain whether there was any relation between the vaccine cicatrix and its preservative power. With that view, having examined 420 subjects affected with small-pox after vaccination, he classed the cicatrices which they had in three orders, according to their physical characters: 1st, normal; 2d, imperfect; 3d, very imperfect cicatrices. In these 420, 231 had normal cicatrices, 124 incomplete, and 65 only very incomplete. From this it appears that the most regular cicatrices were far from constituting the most certain guarantee against an attack of small-pox.

But does a normal vaccine cicatrix render the consecutive small-pox less confluent? The following table answers this question in the negative.

Eruption.	Confluent.	Discrete.	Very Discrete.	Total.
Cicatrix normal	83	91	57	231
" incomplete	53	49	22	134
" very incomplete	18	28	19	65
				420

Nor do the number of vaccine pustules offer any assurance of protection, as will be seen from the following table:

Eruption.	Confluent.	Discrete.	Very Discrete.	Total.
One cicatrix	30	30	16	76
Two cicatrices	36	35	22	93
Three cicatrices	40	38	20	98
Four and more cicatrices	48	65	40	153
				420

Does the liability to an attack of small-pox, after vaccination, result from the preservative power of the virus having become enfeebled by its successive transmissions? or to the prophylactic powers of this virus, being but temporary and limited to a certain number of years? Dr. L. adopts the latter explanation, and adduces, in its support, the following statistics of 1411 patients, observed in 1837 and 1838, all affected with small-pox.

Patients under 5 years of age	130
" from 5 to 10	101
10 " 15	151
15 " 20	203
20 " 25	282
25 " 30	216
30 " 35	160
35 " 40	68
	1411

If we consider that all these patients have been vaccinated in early life, and also the smaller number of individuals who attain the age of thirty years, these statistics would favour the view of Dr. Lossette, of the utility of revaccination.—*Gaz. Méd. de Paris*, May 11, 1844, from *Annali Univ. di Med.*, 1844.

19. *Nitrate of Silver in Chronic Diarrhœa.*—Drs. Bertini and Bellingiere, in obstinate diarrhœa and dysentery, have found great advantage from the use of enemata and of crystalized nitrate of silver. These enemata are prepared by dissolving half a grain of nitrate of silver in half a pint of water. The patient should retain the enema for some hours. If necessary, the dose of nitrate of silver may be increased to three grains for each enema.—*Terza Statistica Nosologica, &c.*, 1843, p. 37, quoted in *Annales de Thérapeutique*, Nov., 1843.

20. *Balsam of Copaiba in Chronic Bronchitis.*—The balsam of copaiba is a favourite remedy of Dr. Bellingiere, physician to the Turin Hospital, in chronic bronchitis. Prof. Bertini also attaches great value to it in the same disease.—*Ibid.*

21. *The uses of Pure Tannin.* By Robert Druitt, Esq.—In any case in which a vegetable astringent is indicated, Mr. Druitt believes that the tannin ought to have the preference. A simple solution of it, in distilled water, he says, is much more easily and quickly prepared, as well as much more elegant, than the ordinary decoctions or infusions of oak-bark, catechu, &c.; moreover, it may be prepared of uniform strength, and free from foreign inert matter, and is not liable to decompose quickly; in fact, it has all the advantages which the

other simple vegetable principles have over crude preparations from the herbs or extracts in which they are contained.

The cases in which Mr. D. has employed it, are sore nipples, excoriations about the anus and scrotum, piles, leucorrhœa, atonic phagedenic sores, toothache, aphthous sores in the mouth, severe salivation and relaxed sore throat.

For *sore nipples* especially, Mr. D. has found it "invaluable." Every accoucheur knows what a source of wretchedness and illness these are to the young mother, and how difficult it often is to find a decisive remedy; but Mr D. has never been disappointed in the use of tannin, except once, in a neglected case, with deep irritable cracks, for which it was necessary to use the lunar caustic. The form in which he employed it, is a solution of five grains in an ounce of distilled water; this is applied to the nipple on lint, covered with oiled silk.

For the itching excoriations about the anus and scrotum, which so much infest old men, he has used it with benefit, but prefers lemon juice as a local application. For piles, with mucous discharge, he has also found it of use, but he cannot say much on this point from his own experience.

"In one or two cases of lingering atonic phagedena," says Mr. D., "I have found it of some service, sprinkled thickly on the sore; but more particularly so in those aphthous ulcers which sometimes occur in the mouths of adults, from acidity of the stomach, and congestion of the liver. I may say that I believe it the best possible remedy for severe salivation, and for all cases of relaxed sore-throat attended with superabundance of mucus. It coagulates the mucus and enables the patient to get rid of it easily. Of course I do not use it to the exclusion of constitutional remedies; but of all the local means of making the mouth *comfortable*, I believe it to be the best.

"But of all the cases for which it is adapted, that common troublesome complaint, toothache, is that in which I believe it is most to be depended on. For this piece of useful knowledge I am indebted to my friend Mr. Tomes, and I have tested it by ample personal experience. It will often be found, as Mr. Tomes told me, that the gum around a carious tooth is in a spungy, flabby condition; a little piece of it, perhaps, growing into the cavity. The ache, too, is often quite as much in the gum as in the tooth itself. But, be this as it may, when the tooth aches, let the patient wash out the mouth thoroughly with a solution of carbonate of soda in warm water; let the gum around the tooth, or between it and its neighbours, be scarified with a *fine* lancet; then let a little bit of cotton wool, imbued with a solution of a scruple of tannin, and five grains of mastich, in two drachms of æther, be put into the cavity, and if the ache is to be cured at all, this plan will put an end to it in nine cases out of ten. I think that practitioners are to blame in not paying more attention to the cure of toothache; I am convinced that, in most cases, it is as curable as a colic or a pleurisy; the chief points being to open the bowels, and put the secretions of the mouth in a healthy state, and to apply some gentle astringent and defensative to the diseased tooth, till it is capable of being stopped by some metallic substance. I say emphatically a *fine* lancet, because the coarse, round, blunted tools that are generally sold under the name of gum-lancets, only bruise the gum, and cause horrible pain. The lancet which I use is sickle-shaped, cutting on both edges and finely ground; and if guarded with the middle finger of the right hand, it may be used in the case of the most unruly children, without any possible ill result."—*Prov. Med. and Surg. Journ.*, Oct. 9, 1844.

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22. *On the Causes of Albuminuria.*—M. Fourcault, observing that suppression of the cutaneous exhalations was one of the fruitful sources of all diseases in every climate, and finding that the same morbid phenomena were manifested when the cutaneous secretion was suppressed in animals, by means of impervious coverings, was led to study the nature of these diseases. An alteration in the nature of the blood, sometimes dissolution of its organic elements, alterations of the secretions, deposits in various organs, local lesions, vascular engorgements like those which occur in tropical fevers, or in some of the severer ones of milder climates, were the usual symptoms produced by suppression of the

cutaneous transpiration. When the suppression was sudden, the disease was more severe; when more slow, the malady assumed a chronic form.

With regard to albuminuria, M. Fourcault determined, by actual experiment, that the disease could easily be produced by suppressing the cutaneous transpiration. In dogs, this disease was induced by covering the skin with an impermeable covering; and also by removing the skin, and then applying the impermeable covering.

Endeavouring to ascertain the material cause of this effect of the impermeable covering, M. Fourcault supposes that it is the excess of lactic acid which is then found in the blood, which reacts on the albumen, and gives rise to the production of albuminuria. Scrofula, tubercular deposits, caries, chronic thickening of the cellular tissue of infants, elephantiasis, lepra, phlegmasia dolens, &c., are all referred by the author to the same cause.

The following are some of the conclusions which he draws from all his observations. 1. The artificial suppression of the cutaneous exhalation gives rise to five orders of phenomena,—a complete alteration of the blood,—a marked lowering of the temperature,—increased secretions and effusions of different kinds,—local lesions and vascular engorgements,—alterations in the nature of the urinary secretion,—and lastly, albuminuria, which, however, can also, though very rarely, originate from a primary affection of the kidneys.

2. The introduction of the lactate of soda into the veins produces albuminuria, by favouring the excess of lactic acid in the blood.

3. When the acid secretion of the skin is suddenly stopped, it produces a marked change in the organic elements of the blood. This alteration is remarked in Asiatic cholera, in plague, yellow fever, and in some of the severer diseases of temperate regions.

4. When this secretion is gradually suppressed, a number of chronic diseases are produced, among which is remarked albuminuria.—*Comptes Rendus des Sc. de l'Acad. des Sci.*, 5th May, 1844.

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23. *Researches on Albuminuria.*—Dr. Meyer, of Tubingen, from researches into the cause of albuminuria, has arrived at the conclusion, that it may be produced by an accumulation of blood in the kidneys, without any organic alteration of the structure of these organs; and that this accumulation is produced either by too large a quantity being carried there by the arteries, or by a partial stagnation taking place in the veins. In this way he accounts for the occurrence of albumen in the urine, in diseases of the heart and lungs. These conclusions were supported by five direct experiments he made on animals. In some he diminished the calibre of the renal veins, or of the cava, by means of ligatures put loosely around the vessels; in others, he tied the abdominal aorta below the origin of the renal arteries. In all these cases the urine became albuminous.—*Edin. Med. and Surg. Journ.*, Oct., 1844, from *Archiv. fur Phys. Heilkunde*, January, 1844.

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24. *On the Pathology and Treatment of the Morbus Brightii, and various forms of Anæmia.* By G. O. Rees, M. D. (*Lond. Med. Gaz.*, Aug., 1844.)—The object of this paper is to direct attention to certain diseased conditions of the blood, in which a deficiency of hæmatosine is the leading characteristic, and to consider how far such morbid states may be regarded as identical with albuminæria in their humoral relations. "The increased quantity of water," Dr. Rees observes, "circulating in earlier stages of the morbus Brightii is no doubt caused by the discharge of albumen with the urine taking place as a constant symptom. Thus the liquor sanguinis is deprived of one of its most important constituents, and the watery condition induced will go on to the production of that secondary state in which the absence of hæmatosine from the blood becomes the leading feature of the disease. This change from the one state to the other is well known by the following analysis made upon blood drawn from patients suffering under the morbus Brightii; the first at an early, the second at an advanced stage of the disorder.

	1.	2.	Health.
Water, - - - - - -	805·71	853·11	792·20
Solid matters of serum, - - - -	85·56	81·28	87·85
Fibrin and corpuscles, - - - -	108·73	65·61	119·95

"The decrease in the proportion of hæmatosine observed in persons who have lost large quantities of blood, and in anæmia from other causes, may, I am inclined to believe, be correctly explained on the same principle that applies to the above cases, and it is not difficult to understand how the antecedent condition, consisting in a loss of proper density on the part of the liquor sanguinis, is brought about.

"When large quantities of blood have been lost, the remainder of the circulating fluid absorbs water in order to maintain its bulk. The dry skin and extreme thirst observed in patients who have suffered from large losses of blood are doubtless indications of the necessity of supplying a sufficient bulk of fluid to afford the heart a stimulus to contraction; but when these cases have passed through the first dangers of hæmorrhage, the anæmia which follows cannot be regarded merely as the effect of dilution of the blood, for a cause exists in that fluid which interferes with the development of the corpuscle, and keeps up the anæmiated condition."

In cases of violent flooding, Dr. Lever has often observed the thirst abated by frequently sponging the body with water, and Dr. Rees thinks there can be little doubt of the advantage of this mode of treatment, not only as a means of allaying thirst, but of saving life; "for an increase," he says, "in the degree of rapidity with which water is absorbed during violent hæmorrhages may make that difference in the condition of the heart which turns the scale of life in favour of the patient; nor do we possess a better means of introducing large quantities of fluid into the blood than by applying it to the extensive surface of the skin; and the stomach, as is frequently the case, may be too irritable to receive liquids. The after-treatment of these cases, as indicated by theory, would consist in the exhibition of saline purgatives and meat diet, with the use of ferruginous tonic medicines to assist in the formation of chyle rich in an element necessary to the formation of hæmatosine.

"The efficacy of this plan of treatment has been long appreciated by practitioners, and its adoption is one among the many instances our profession affords of the discovery of practical truth as the result of lengthened and tedious experience, and without the assistance to be derived from physiology and pathology, which sciences, had they participated in the elucidation, would have enhanced the value of the fact, by enabling us to deduce general principles of treatment from the knowledge obtained, and have suggested important analogies not otherwise presentable to the imagination."

The various forms of anæmia which attract the attention of the practitioner, in many of which no very obvious cause for pallor can be ascertained, will frequently admit of explanation, Dr. R. considers, "if the principles above noticed be kept in mind, and inquiry made into all the possible causes which can produce a decrease in the specific gravity of the liquor sanguinis. It would appear," says Dr. Rees, "that this decrease admits of being brought about in one of three possible ways: 1st, by removal of one or more solid constituents from the blood; 2dly, by inactivity on the part of the exhalents, the skin, lungs, and kidney, which will so derange the balance between the ingested and exhaled fluids as to leave an excess of fluid in the blood; and 3dly, by an increase of the absorbent action of the skin.

"The first of these conditions is present in the morbus Brightii, while in cases of anæmia caused by excessive loss of blood, the first and third conditions exist. The latter, however, though tending to produce anæmia, in all probability merely takes place in order to preserve life; and we are not yet in possession of sufficient facts to enable us to decide how far it may exist in any other cases either as an accessory or sole cause of anæmia.

"If we examine the histories of anæmial cases, we frequently discover that

large quantities of the solid matters of the blood have escaped from the system in the form of leucorrhœal discharge, when the whole phenomena of the disease are explicable (at least so far as the pallor is concerned) on those principles which apply to the morbus Brightii. In other cases a difficulty exists in detecting any such cause for anæmia, and in those I am inclined to believe in the existence of the second condition above mentioned; and that the changes productive of anæmia have occurred in consequence of the exhalent power of the skin having become impaired.

"These cases are generally characterized by a weak pulse, the skin being peculiarly flaccid, and the surface cool, while large quantities of water pass off by the kidneys. A stimulating diet, ferruginous tonics, tepid baths, and cutaneous frictions, are here particularly indicated, and rapidly produce their beneficial effects.

"There is another class of anæmial cases, which, though seldom seen, are still sufficiently common to deserve attention; these constitute, in fact, a form of the morbus Brightii, but as they occur in young females slightly advanced beyond the age of puberty, and are accompanied by amenorrhœa, frequently escape detection, and are treated as chlorosis, while a more favourable prospect of recovery is entertained than would be the case were the true nature of the disease known to the practitioner.

"The long continuance of anæmia in young girls who have never suffered loss of blood, and in patients affected with morbus Brightii, who have never passed red corpuscles in quantity with their urine, are facts which, when considered in connection with the analysis of the blood in such cases, sufficiently show that the disease may be produced by an imperfection in those processes which are necessary to the genesis of the blood corpuscles. That this imperfection consists in a loss of the normal relation between the specific gravities of the liquor sanguinis and chyle, is but a necessary deduction from what we know concerning the chemical and physical conditions of these two fluids; for it is positively certain that the chyle, being of less specific gravity than the liquor sanguinis, must, as it passes into the venous system, act upon the red corpuscles so as to enter them freely; and it is equally certain that the nearer the liquor sanguinis approaches to the chyle in specific gravity, the greater will be the difficulty in supplying this ferruginous ingredient for the production of red colouring matter within the corpuscles. This being admitted, we must not forget that the anæmia caused by the positive abstraction of blood in large quantities, the bulk of which is supplied to the system by an absorption of water, is a diseased state greatly aggravated by the difficulty which must be experienced by the reproduction of red colouring matter, owing to the approach of chyle and liquor sanguinis to the same specific gravity; and our remedies should be chosen, as in other cases of anæmia, with this view. The water should be removed by purging, nutritious diet enjoined, and iron freely administered."

Dr. Rees finally notices a mechanical condition influencing this degree of pallor, and which forms an important element in the production of anæmia. "It consists in a change in the form of the corpuscles, producing a thickening of their edges as seen under the microscope, and exactly resembling a state always to be produced artificially by the addition of dilute saline solutions to the blood after removal from the body." This Dr. R. has frequently observed in the blood of anæmiated girls, and "it is doubtless caused by entrance of the too dilute liquor sanguinis into the globule at the commencement of the degeneration, rendering the form of the corpuscles such as greatly to interfere with their circulation through the capillaries, and thus contributing to the production of the pallor. As the disease advances, the corpuscles, however, are frequently observed pale and flaccid, the balance having been effected between the contents of the corpuscle and the liquor in which they float. In this stage, however, if the skin fail to discharge its function, or if blood be lost from the system, we must expect that the corpuscle will again become thickened, as, under these circumstances, the state of stasis is disturbed, and the liquor sanguinis will again enter freely, owing to its having become further degenerated by the addition of water."

Dr. Rees recommends the adoption of the same "plan of treatment in the early stages of the morbus Brightii that is found efficacious in chlorosis and the anæmia produced by hemorrhage, viz., chalybeate tonics, saline purgatives, and nutritious diet; being satisfied of the value of the plan, which, though not immediately calculated to remove the congested condition of the kidney known to exist in the complaint, is still of efficacy in preserving the normal state of the blood, and may thus fairly be considered as assisting in recovery. It will be obvious, from what has been stated above, that the removal of nephritic congestion should not be effected by bleeding in any form, inasmuch as it tends to produce the condition of blood which it is desirable to avoid, as a forerunner of the secondary evils of the morbus Brightii. Counter-irritation and dry cupping are the most desirable methods of relieving the kidney."

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25. *Deaths from Small-Pox after vaccination in London.*—A number of deaths from small-pox reported after vaccination having occurred lately in the metropolis, a letter was addressed by the Registrar-General to the several metropolitan district Registrars, requesting information upon the particular cases that were entered in such terms. The Registrar-General submitted the following queries to the district officers. 1st. When was the vaccination performed? 2d. By whom was it performed, and was it seen afterwards, and did the medical man say that it had taken effect? 3d. Was there any mark left on the arm? 4th. State the name and address of the medical man who attended the patient in his last illness.

The answers to these queries having been duly received, they were forwarded to Dr. Gregory, Physician to the Small-pox Hospital, for his examination; and his conclusions in regard to them have been published from the General Register Office. Dr. Gregory says:

"I have carefully perused the details of thirty-four cases of small-pox proving fatal after alleged vaccination, which you have done me the honour to submit to me, and beg to offer the following short commentary upon them."

He then goes over each case seriatim, and gives the following summary:—

Cases incorrectly registered, - - - - - -	11
Cases too doubtful to be made matters of inquiry, - - - -	8
Undoubted cases of fatal small-pox after vaccination, in the adult, -	5
Cases of small-pox fatal in early life after vaccination, - - -	10
Total, - - -	34

The deaths of five adults after vaccination afford no scope for special comment. Similar cases have been recorded in all countries for many years past. But the deaths of ten children after vaccination is a new feature in the history of the disease, and therefore demands a special investigation.

"The ages of these ten children are as follows: 1 of 9 years, 1 of 8, 2 of 6, 1 of 5, 3 of 4, 1 of 3, 1 of six months.

"2. In all these cases the evidence of prior vaccination was such as to justify the Registrar in recording them as cases of fatal small-pox after vaccination.

"3. These children were vaccinated in different localities, showing that the source of the vaccine imperfection was not local.

"4. The respectability of the vaccinators, and the appearance of scars in eight of the recorded cases, forbid the assumption of entire irregularity in the vaccine process.

"5. How are these cases to be explained? Are we to suppose that the virus employed in these vaccinations was less energetic than that which was formerly in use; or is it that some change has taken place in the human constitution in the course of the last half century? It is unquestionable that such a series of cases occurring forty-four years ago would have had a material influence on the fate of vaccination. Now, with our ample experience of the benefits of vaccination, the fear is lest these cases should fail to attract that attention which may lead to ulterior benefit.

"6. In reasoning on these cases, it should be borne in mind that they are the first of the kind which have been brought before the notice of medical men. Similar occurrences may have taken place, but they have attracted no attention either here or abroad. No corresponding cases have been recorded in any of the quarterly reports transmitted from the provincial Registrars of England and Wales. Nothing parallel to them has occurred in the experience of the Small-pox Hospital. The earliest stage at which small-pox has there been observed to prove fatal is fourteen years, though several instances of the disease in a milder form have occurred at earlier dates.

"7. These considerations afford ground for supposing that lymph of an imperfect quality had been used in some, at least, of these instances. Whether this supposition be well or ill founded, whether it applies to the lymph now in use, or otherwise, may be doubted, but the occurrence of ten fatal cases among children in the metropolis in the short space of a few months demands the especial attention of all who are engaged in the practice of vaccination. It behoves them, as well for their own credit as for the credit of vaccination, to be extremely careful in the selection of vaccine lymph, and to be distrustful of the result wherever the course of the vaccine process has been irregular.

"8. These cases suggest the necessity of enforcing by law a medical certificate of the cause of death in every case of registry. With such a precaution, the irregularities in the register of deaths, already adverted to, never could have occurred. I feel assured that the medical profession throughout England would willingly co-operate in such a design if the legislature should think fit to ordain it.

"9. These cases further impress me with the great importance of restricting the number of those to whom the parochial system of vaccination (enjoined by the Vaccination Extension Act) is entrusted. I speak after twenty-two years' experience in the practice of vaccination; and I know that the choice of effective lymph requires much tact and discrimination, and that, except at vaccine stations, where considerable numbers congregate, such choice cannot be had, nor such knowledge acquired."—*Lond. Med. Gaz.*, Sept. 20, 1844.

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26. *Valerianate of Zinc in Nervous Affections.* (*Gaz. Méd. de Paris*, 29 June, 1844.)—Dr. Devay, from numerous trials of the valerianate of zinc in neuralgic affections, has satisfied himself that it is a remedy of considerable powers, and deserves to be more generally employed. It appears, however, from the cases he has recorded, that its curative powers are confined to purely nervous affections. Its therapeutic virtues have been powerfully manifested in the nervous affections which accompany chlorosis, in tic douloureux, not depending upon an organic cause, in hemicrania, and even in some cases of satyriasis and epilepsy. It seems to act as a powerful antispasmodic, combining the powers of valerian and zinc. The dose is half a grain, two, three, or four times a day.

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27. *Singular Case of Encephalitis.* By Dr. Guiseppe Perini.—The subject of this case was a Milanese lady, aged 15, previously in the enjoyment of the best health. She had menstruated twice, and at the time of the attack was within eight days of her third period. For some time previously she had been annoyed with shooting pains, noise in the ears, and nocturnal cramps. Sometimes, also, the movements of the limbs had not responded to the will; bright flashes had appeared before her eyes, and her usually tranquil slumbers had been disturbed with dreams. In the month of April of the past year, while at her dinner, she was seized with an irresistible desire to yawn, but it did not prevent her from finishing her meal, which she took as usual with appetite. But speedily the yawns became more frequent and continuous, till at length there was an incessant opening and shutting of the jaws, accompanied with a feeling of anxiety and distress, as if the yawns were not sufficiently frequent or deep to give relief. Loss of vision next came on, and accompanied the continual yawning, and this was succeeded by delirium, all in the space of twenty-four hours. When seen by the author, the following was her condition:—A previous bleeding had re-

moved the delirium;—she was seated, pale and exhausted-looking on her bed, the body inclined forwards, and yawned incessantly. An occasional expression of suffering escaped her, between the incessant respiratory movements; then, as if fatigued, she threw herself down upon her bed, but only to resume immediately her former position. She complained of a deep-seated obtuse pain in the head, which was increased on pressing the middle of the occiput; it was, however, neither very severe nor constant, and did not appear in any way connected with the alternations of the yawning. The sensibility of the body, excepting one part, where it appeared to be abolished, was on the whole rather augmented. The hands were the parts without sensibility, and were besides cold, blue, and could be pinched and irritated without its being felt. The power of vision was gone, and bright flashes of light darted before the eyes of the patient, whatever was the state of the light in the chamber. There was no convulsive trembling of the eyeballs, and no pain in them on pressure. The pupils were slightly contracted, but sensible to light. The sense of taste appeared normal; those of smell and hearing were intensely acute. The ticking of a small watch in the pocket, not heard by any one present, was so painful to the patient that the bearer was obliged to leave the chamber. The intellect appeared clear, the patient answering promptly, by signs, to all the questions that were asked of her. Sleep was entirely prevented by the continual yawning. The only peculiarity in the muscular apparatus, was an occasional shock affecting the left side of the body, by which means the forearm was forcibly bent upon the arm, and the arm raised upwards and outwards; the thigh and leg being at the same time similarly affected. There were also occasional cramps in the calf of the leg on the same side; the tongue was slightly coated, and the bowels inclined to be costive, but in other respects the digestive functions appeared to go on naturally. Urine natural, and passed without difficulty. The impulse of the heart was increased, and heard over a larger space than usual. The carotids and arteries of the head pulsated strongly, contrasting with the pulsations at the wrist, which were weak. The sounds of the heart and respiration were natural.

The delirium was, as stated above, at once removed by a bleeding, but the other symptoms continued unchanged for about thirty hours; when the pain, which had been confined to a single point of the head, extended itself gradually downwards, along the whole course of the spinal column, and became so excruciating as to render intolerable the slightest touch of the scalp or the processes of the vertebræ. At the same time the yawning suddenly ceased, and the patient fell into a state of profound sleep. Persevering efforts were made for the space of half an hour, to arouse her from this sleep, but in vain, when a sudden yawn awakened her, and she began to sing some music which she had seen before her illness. Next, she recited in French some fables she had learned in that language while at school, and concluded by translating them into Italian. And if any word had been improperly rendered, she began her translation again and corrected the error, just as if she had had a book with the right translation before her. This was the more remarkable as she had not manifested the same proficiency in the French language during health; and in music she had never been instructed, nor had she a natural taste for it.

The menstrual discharge appeared in the midst of this scene, and lasted two days, but without any change in the continued alternations of sleep, singing, French recitation, and translation of it into Italian. After four days the above phenomena began to come on less frequently, the yawns occurred seldomer, and some refreshing sleep was obtained. At length they occurred only twice in the day. The power of vision also returned gradually, and the sensibility of the surface became normal, and the symptoms left her after an illness of about eight days; in the course of which she had been largely bled, freely purged, salivated, and taken quinine. But occasional threatenings of a return, which assumed a periodical character, annoyed her for some days. By the end of April, however, she was completely cured, and at the time of the report had continued for some months to enjoy robust health.

The author is of opinion that the disease consisted in inflammation of the medulla oblongata, extending itself by continuity to other parts of the base of the brain, and along the spinal cord. In support of this opinion he enters into a number of physiological details as to the effects of irritation applied to these parts, and the nerves arising from them, and attempts to account on this principle both for the phenomena themselves, and for the order of their appearance. —*Lond. & Ed. Month. Journ. Med. Sci.*, Oct. 1844, from *Gazetta Medica de Milano*, 9 March, 1844.

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28. *Analysis of the Blood of Persons exposed to Malaria.*—M. Salvagnoli examined the blood of four persons actually labouring under, or who had just recovered from intermittent fever, and were living in a malarious district. He found that it contained a notable diminution in the proportion of its fibrin, albumen, and fatty matter, and that the phosphates had almost entirely disappeared. It contained, however, a large quantity of cholesterine. It is remarked that the biliary secretion of those living in such districts has been previously noticed to be rich in cholesterine.—*Ed. Med. & Surg. Journ*, Oct., 1844, from *Gaz. Méd. de Paris*, 18 May, 1844.

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29. *Passage of Metallic Mercury into the Blood and Solid Tissues.*—M. Œsterlen has made a number of experiments for the purpose of ascertaining whether metallic mercury, when rubbed on the skin and given internally in a state of fine division, enters the body in the metallic state. For this purpose he both rubbed mercurial ointment on the shaved skins of animals, and administered a certain quantity internally. In both cases he found globules of mercury from the 250th to the 1000th of a line in diameter in the blood. The mucous contents of the colon also contained distinct globules of mercury. Metallic globules were also detected in the mesenteric glands, in the liver, spleen, lungs, kidney, in the bile, and in the urine; they were also found in the cavities of the heart. The author also states that he has detected metallic globules in the saliva and urine of a woman who was salivated by mercury. From his experiments, M. Œsterlen concludes, that, in general, small quantities of mercury, introduced by friction or by the stomach, are thrown out of the system by means of the urinary and biliary secretions.—*Ibid.*, from *L'Experience*, 1st Aug., 1844.

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30. *Epilepsy caused by a Foreign Body in the Ear, and cured by its removal.*—M. Lamothe relates, in the *Journ. de Méd. de Bordeaux*, a case of this kind. The subject of it was a man thirty years of age, in whose external meatus a pebble had been introduced. At first he experienced only a slight diminution of hearing; afterwards suppuration occurred, to which, however, the patient paid little attention; and finally epileptic attacks supervened. He had suffered from these for two years before he consulted M. Lamothe. This physician, being informed of the probable existence of a foreign body in the ear, made an examination, and perceived it distinctly. By appropriate means he removed the pebble, which was rough and of nearly a triangular shape, and from that time the patient has had no more attacks of epilepsy.

M. Roussilhe relates in the same journal a similar case.

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31. *Symptoms of Acute Pleurisy, caused by Intestinal Worms.*—The *Journ. de Méd. et de Chirurgie Prat.*, (Ap. 1844,) quotes from the *Gazette Médicales de Dijon*, the case of a young man, nineteen years of age, who was attacked with all the symptoms of acute pleurisy—chill followed by fever, severe pain in the left side, difficult jerking respiration, paroxysms of dry coughing, which drew screams from the patient, &c.,—all of which promptly disappeared after the evacuation of a large number (75) of lumbrici.

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32. *Sulphate of Iron combined with an Alkaline Carbonate, an Antidote for Prussic Acid.*—In an article published in the *Lancet*, (Oct. 5th,) Messrs. J. and J. H.

Smith, of Edinburgh, announce they have discovered that a sulphate of iron, of proper constitution, is an effectual antidote to prussic acid.

To prepare a salt of the proper constitution, seven parts of protosulphate of iron, say seven half drachms, are required, four of which are to be formed into persulphate. This is done by adding to the solution a quantity of sulphuric acid equal to the half of what it already contains,—which for two drachms, would be twenty-three grains of acid of the density 1·845—and at a boiling heat, adding, at short intervals, small quantities of nitric acid till red nitrous fumes cease to be given off. The liquid is then to be evaporated in a porcelain basin to perfect dryness, by the heat of a water bath, stirring constantly with a glass rod till the excess of acid is thoroughly driven off. The operation will be more quickly finished in a bath of a saturated solution of salt. The perfectly dry salt is then to be dissolved in distilled water along with one and a half drachms of protosulphate of iron, so that the solution may amount to two ounces. This solution will not of itself precipitate prussic acid, but if a solution of an alkaline carbonate be previously added, containing a quantity just sufficient to take all the sulphuric acid from the iron salt, the prussic acid combines instantaneously with the iron, forming the very permanent and insoluble compound, Prussian blue. As the solution of the sulphate of iron contains in all nine equivalents of sulphuric acid, the same number of equivalents of carbonate of potash—the alkaline carbonate used by the Messrs. Smiths*—will be required to seize upon these and produce complete decomposition.

The proper quantity of the alkaline carbonate required for the exact decomposition of the iron salt, the Messrs. Smith state to be one hundred and forty-four grains; and, for the sake of simplicity, they dissolve this in the same quantity of water as the sulphate of iron. As each of the solutions contains exactly 960 minims, which by calculation should throw down 56·8 grains of real prussic acid, between 17 and 18 minims of each should separate one grain; and as the hydrocyanic acid of the London pharmacopœia contains two per cent. of real acid, 35 minims of each would be required to precipitate 100 grains of such an acid. The acid of the Edinburgh pharmacopœia, on the other hand, containing about three per cent., a third more, or about 52 minims of each of the solutions, would be necessary to separate all the prussic acid from 100 grs. "It is probably unnecessary to carry the calculation higher, as we suspect that if a larger quantity than 100 grs. should be taken, the fatal effect would be so rapid as completely to exclude the possibility of rendering any available assistance. These are the quantities theoretically necessary, and when pure materials are used, will be found very nearly correct, as tested in an open vessel; but, when given as an antidote for the poison, we would recommend not less than three times the theoretical quantity to be given, as from the presence of food, mucus, &c., in the stomach, it is improbable that the antidote would mix immediately with the poison at every point, so that to render the action more certain, a large excess is advisable, more especially as this can be attended with no evil consequences, as the only effect that could follow an excess would be the formation of sulphate of potash, and an insoluble mixture of protocarbonate and peroxide of iron, which, if active in any way, would, by producing sickness and vomiting, be really in the direction most to be desired.

"There is one circumstance that may interfere with the action of the antidote, and which cannot be overlooked. We allude to the possibility, nay, the probability, of the existence of a strong acid in the stomach. In such a case, it is evident that the alkali, on entering the stomach, might be wholly neutralized, and thus prevent the decomposition of the iron salts; but we have found that the prussic acid is completely precipitated by the method proposed, although a large quantity either of caustic or carbonated magnesia is present, so that nothing is more easy than at the very outset to give the patient a large dose of magnesia

* The carbonate of potash, which ought to be used in the preparation of the antidote, is the carbonate obtained from pure crystallized bi-carbonate of potash by heating in crucible to redness.

in either state, so as thoroughly to neutralize all free acid; but when this is not possible, it is not meant that the antidote should not be given."

In giving the antidote, the Messrs. Smith advise the alkaline solution to be first administered, having previously mixed it with a little water; and the solution of iron salts, also diluted, to be next given without delay. They also recommend that not less than one drachm of each solution should be given for every thirty drops of the acid supposed to have been taken.

"We do not," Messrs. Smith observe, "for one moment conceive the remedy we have proposed to be infallibly successful as an antidote in all cases of poisoning by prussic acid. It stands, in this respect, on the same ground as our most valuable remedies. Its success must vary with circumstances peculiar to each case. It is very obvious that this, like every other remedial agent, however valuable, will frequently fail of the desired effect, simply from being too late of being applied."

"They think, however, that in no case of poisoning by prussic acid should it, if possible, be omitted, as it is sure to destroy the whole of the poison still left in the stomach, so that any harm which can arise from this will be wholly obviated, and unless the attack on the vital organs has already been too serious to be remedied, the person's life will be saved. Other approved means of treatment also should not be neglected, and especially bleeding freely from the jugular vein."

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33. *On the Diagnosis of Empyema.* By Robert Mac Donnell, Esq., of Dublin. —[We hardly need remind our readers that when serum is effused into the cavity of the pleura the affection is named *hydrothorax*, when the effusion consists of blood it is called *hæmothorax*, when the effusion is of a gaseous nature, *pneumothorax*, and when constituted of pus and other kinds of effusion, we have what is called *empyema*, especially when the liquid compresses the lung and impedes respiration. Mr. Mac Donnell has written a most interesting paper on the last-named affection, in which he relates several cases wherein one or more tumours appeared on the surface of the chest, which, after pulsating for some time, became red, tense and shining, and eventually burst, giving exit to large quantities of pus. When the empyema is attended with these pulsating tumours, he calls it "*Pulsating Empyema of Necessity.*" The following is a good illustration.]

A woman, aged 28, of dissolute and abandoned habits, was admitted into the Meath Hospital, Sept. 6. It appeared from her statement that she had been labouring under symptoms of acute pleuritis for two months, for which she was actively treated. When admitted, she was greatly emaciated, suffered from pain in the left side a little below the mamma; she had cough, with bloody streaks through the expectoration, and inability of lying on either side, decubitus being for the most part on the back. Her pulse was 108, small and weak. The *physical signs* were dulness of the left side, commencing a few inches below the clavicle, and extending downwards both before and behind; the left lateral region was likewise dull; total absence of respiration all over this dull portion; the upper part of the left side, both before and behind, was clear on percussion, with bronchitic rales accompanying the respiratory murmur. The lower half of the sternal region was completely dull, and here the sounds and pulsations of the heart were more intense than in any other situation. The whole of the right side of the chest, both before and behind, sounded clear, and the respiratory murmur was loud, puerile, and free from rale. There was no dilatation of the side observed on her admission.

For the next fortnight there was very little change observed; on the 21st, however, the cough again became very troublesome, and was accompanied by a copious muco-purulent expectoration, and her breath became intolerably fœtid; pulse 106, weak and feeble; respiration 25, and very laboured. She complained of slight tenderness a little below the nipple, but there was no discoloration or œdema of the part. On the 26th, a small tumour became perceptible, *every time she coughed*, in the situation of the pain; it was soft, and exqui-

sitely tender to the touch, but not discoloured or œdematous. On the 28th, bronchitic rales were very intense in the right lung, and those in the top of the left lung were much increased; the *expectoration had become quite purulent.* When she reclined to the left side, the tumour became greatly enlarged, but receded when she lay on the right, and had a distinct fluctuation. On the 30th the tumour had extended considerably, and the expectoration was still *purulent, and very copious.* Pulse 108, and weak.

From the 1st of October till the 15th, she suffered severely from uncontrollable diarrhœa, and was reduced to such a state that her stools were passed involuntarily. The tumour had greatly increased, and was now about the size of an orange; it was red, shining, and fluctuating, *and had a strong diastolic pulsation,* which did not convey the idea of being tilted forward by a pulsating body, as occurs in the case of tumours lying on arteries; but it was of an expanding character, and in every part the pulsation was equally strong. *Though frequently examined with the stethoscope, the least trace of bruit de soufflet was never discovered;* nor had it the peculiar thrill so frequently felt in aneurisms. On the 21st she expectorated about a pint of green pus, and the bowel complaint received a notable check. The tumour was still more red, tense, and pulsating, and on the following day it burst, and gave exit to about three quarts of extremely fœtid pus, and she became exceedingly weak. After the evacuation of the pus the sound on percussion assumed a clear tone. On the 24th the respiration in the right lung was again healthy, and free from rale. The tumour had receded, the respiration in the affected side was just audible, but without rale. All the metallic phenomena, except *tinkling* and amphoric breathing, were present, and the sound on percussion was quite tympanitic. When the aperture was uncovered, *a peculiar rustling or whistling noise was perceived at each inspiration. From this time she began to rally, her strength increased, the diarrhœa ceased, and the purulent expectoration diminished,* and she was able to sit up all day, the pus constantly trickling from the fistula which remained open, and for the next six weeks she had periodical discharges to the amount of two or three quarts every ten days or so. At last her strength again failed, the cough increased, the pulse became quick, but she remained free from sweating. The clavicle and spine of the scapula of the affected side became gradually dull, accompanied with feeble respiration, mixed with crepitating rales. The day before her death, which occurred on the 15th of December, a discharge of nearly three quarts of green and fœtid pus escaped from the fistula.

Post mortem examination.—The right lung was in every respect healthy, *not the least evidence of bronchial inflammation in any part of it.* On the left side of the chest being opened, the lung was found bound by adhesions to the ribs, for about two-thirds of the pleural cavity, and the remaining third, *i. e.*, between the compressed and shriveled lung and diaphragm, was an empty cavity. The lung was also bound down to the spinal column by two strong bands of adhesion, and its inferior lobe was found red and carnified. The sac of the abscess passed behind the lung also, to a considerable distance; it was coated with a thin layer of organized lymph. The upper lobe of the left lung was the seat of numerous tubercles, beginning to soften, the anterior part of the lower lobe was healthy, but the posterior, as before stated, was solid. The fourth rib was quite carious near its cartilage, and the sixth was in a similar condition, and the periosteum covering both was in a sloughy state. Externally the integuments around the fistula were separated for a couple of inches from the subjacent muscles. *The liver was enlarged to nearly half its normal size, engorged and full of blood.* The intestines were examined with the greatest care, but no trace of disease could be discovered.

[In the next case related by Mr. Mac Donnell, two tumours appeared in the lower part of the left side, presenting fluctuation and *pulsation,* which, on being opened, gave exit to large quantities of pus; one tumour was situated in the spot usually occupied by the apex of the heart; the other posteriorly between the tenth and eleventh ribs, about two inches from the spine. They were each about the size of a Seville orange, were soft, fluctuating, not discoloured at first,

and possessed a *strong diastolic pulsation*, quite visible, and as strong as that of an aneurism of equal size, but without *bruit de soufflet* or thrill. It was also evident that a communication existed between them, for, by placing the hand on one, fluctuation could be felt when the other was tapped. The heart had left its natural position, (now occupied by one of the tumours,) and was pulsating strongly and visibly to the right of the sternum, under the corresponding mamma. Both tumours were opened at different times to the great relief of the patient, who, however, eventually died of phthisis, after a residence of four months in a prison. In the third case related, "*two tumours*, each *about the size of a hen-egg*, *were observed*, one occupying a situation a few inches below the nipple, the other presented itself between the tenth and eleventh ribs, about two inches from the spinal column. *They were rather tender to the touch*, *a few turgid veins surrounded their bases*, *the integument covering them was discoloured and reddish*, *and they both possessed a well-marked fluctuation*, *and a distinct*, *perceptible*, *and diastolic pulsation*. This latter peculiarity was not only evident to the touch, but quite perceptible to the eye; and as was noted in the two former cases, these tumours were completely devoid of thrill or *bruit de soufflet*, and the pulsation had all the characters that were observed in the two others." An opening was made into the posterior tumour, and a large quantity of odourless pus was discharged; the entire amount was not, however, drawn off, and the wound was closed with adhesive plaster, and soon united. When next examined, the tumour was found as large as before, and again presented the *pulsation* as well marked as ever. From the operation he experienced great relief for a few days, but again the urgent symptoms obliged Mr. Morrison, his regular attendant, to make a second opening, and as soon as the matter began to flow, he got ease from the sense of suffocation. For a little while the patient appeared to improve, but he soon fell a victim to distressing hectic."]

Remarks.—The three preceding cases are no less interesting than important, and, as far as I have been able to ascertain, are perfectly new in the history of empyema, there being no mention made of such cases in any of the recent writings on the disease. It is worthy of notice that in all three large tumours presented themselves in the situation usually occupied by the heart's apex, and, in all, the heart itself was dislocated to the right of the sternum; there cannot then be the least doubt as to the source from which the pulsation was derived, and the manner in which it was communicated to these abscesses. The heart, pushed out of its normal position, pulsated strongly and equally against their walls, and their contents being fluid and of equal density, a uniform and diastolic impulse was communicated to all parts of their surface, more intense, of course, in those situations nearest the source of pulsation. This accounts for what was noticed in the three cases, that the pulsation did not resemble that so often observed in tumours lying over large arteries, in which the motion consists in a mere tilting forward, nor was it like that which is seen in ordinary abscesses lying on an artery, in which the pulsation occurs, generally speaking, along the line of the vessel, and is scarcely perceptible in any other part of the tumour; but it was uniform, expanding, and strong. In the two last cases, the tumours behind either derived their pulsation from the heart or from the thoracic aorta, and were, from their size, situation, and feeble pulsation, more likely to lead us into error than those in front. What are the affections with which these cases might have been confounded by a person ignorant of the actual state of our knowledge respecting thoracic disease, or who, unacquainted with their history, had only seen them for the first time? Thoracic aneurism, and pulsating cancer of the lungs immediately present themselves to our view, and on examination we shall find that they possess some features in common. When compared with aneurisms we have, in both cases, tumours occurring in patients, who, for a length of time, complained of pain in the side, difficulty of breathing, cough, inability to lie but on one side; whose constitutions were exhausted by the protracted and distressing nature of their complaints, and in whom the outward progress of the disease was marked by severe pain at a particular point, in which, after a time, a small tumour, of a soft and yielding

nature, is observed, which gradually increases in size, is totally devoid of pain, and presents well-marked *diastolic pulsation*. But, on the other hand, the history of the two last cases was that of pleurisy with effusion; their duration, also, (three years,) was greater than the average length of time that patients with thoracic aneurisms lived, and at no period did they experience those dreadful, tearing, and lancinating pains peculiar to the latter disease; and, in addition, many of the usual symptoms of the affection were absent, such as dysphagia, *the peculiar aneurismal cough*, a *bruit de soufflet* on placing the stethoscope over the tumour, and a thrill sensible to the hand; and, as far as I have been able to ascertain, aneurism of the thoracic aorta has never presented itself externally in two situations so *widely separated*. They were also distinguished from aneurism in the following particulars: the greater portion of the affected side was dull, and without respiratory murmur, yet the pulsation was *only* felt in the external tumours, in this respect differing essentially from aneurisms, in which the pulsation, thrill, and *bruit de soufflet*, (when present,) *are most intense at the point of maximum dulness;* and though by pressure on a bronchial tube, aneurisms may prevent the entrance of air into the part of the lung to which the tube leads, and thus produce absence of murmur, yet this portion of lung will yield a clear sound on percussion, thus presenting phenomena altogether different from those observed in my cases.

These cases, however, establish the fact, that "empyema of necessity" is liable to be mistaken for aneurism, particularly, (as in the first case,) when it occurs in the form of *one large pulsating tumour*, and an accurate knowledge of the characteristic features of the two affections is necessary in order to avoid committing the grievous error of pronouncing an empyema to be an aneurism, or *vice versa*. But we do not anticipate so much difficulty in distinguishing between these two diseases as between such cases as I have detailed, and "cancer of the lung and mediastinum." At the very outset of our investigation a great difficulty presents itself, for we cannot avail ourselves of the aid derived from the history of the disease, for in many of the most accurately recorded instances of cancer of the lung, the patients evidently suffered at the commencement of their illness *from pleurisy excited by ordinary causes, and followed by empyema*, and, in other instances, where the existence of empyema was not actually discovered, the history of the cases resembled, in many particulars, that of ordinary pleurisy.

[Mr. Mac Donnell next relates two interesting cases of empyema in which the pus made its way, not externally, but into one or more of the bronchial tubes, and was removed by expectoration. The first case commenced with acute pleuritis, followed by *copious purulent expectoration*, two large sputa-cups full of thick, yellow, "well concocted" pus being expectorated daily. The entire of the empyema was thus removed by expectoration, and in six weeks the patient quite recovered. Professor Greene, in the 17th vol. of the Dublin Journal, has drawn the attention of the profession to some cases of this kind.]

"He details the particulars of four cases of the disease, in all of which copious *purulent* expectoration was a prominent symptom; and in all there were external tumours, which it was deemed prudent to puncture. In these instances, it was observed, that as soon as the matter got exit by the external opening, the quantity of *purulent* expectoration diminished, and the same circumstance occurred in the case now mentioned. Dr. Greene adds—'The first explanation I heard offered as to the nature and cause of this expectoration was suggested by Dr. Hutton, in a consultation held on one of the cases detailed. He observed, that he had frequently seen the expectoration to subside and lose its character when an opening had been made for the collection, and had consequently come to the conclusion, that in many cases of empyema the expectoration was the result of an effort of nature to free the system of purulent deposit through an external outlet, which, in these instances, was effected through the bronchial tubes.'

"The paper of Dr. Greene must be regarded by every physician as one of the most useful that has appeared for many years. We learn from it, that though

a patient present all the symptoms of extensive empyema of one side, with bronchitic rales or gurgling in the opposite lung, and copious *purulent* expectoration, the case is not to be despaired of, nor are we justified in giving a positive diagnosis of the existence of pulmonary abscess.

"Before the appearance of Dr. Greene's paper, these cases would have been considered as hopeless examples of pulmonary abscesses, or at least of empyema bursting into a bronchial tube. This leads me to make a few remarks, suggested by the close observation of some cases of empyema, which have terminated by purulent discharges from the bronchial tubes. There are two modes by which this process is effected; in one, the membrane *takes on a vicarious action*, by which large quantities of pus are discharged *without any distinct evidence of inflammation being set up in the membrane, or communication being established between the bronchial tubes and the sac of the abscess.* In the other form, a *direct* communication exists between the bronchial tube and the sac of the empyema. They are both efforts of nature to get rid of the purulent collection and effect a spontaneous cure, but as the means adopted are so widely different, an equally opposite train of symptoms may naturally be expected to attend these processes, and such we find to be the case.

"In the examples detailed by Dr. Greene, and in those which I have given, the expectoration was thrown up *in small quantities at each paroxysm* of coughing, and though it amounted to a considerable quantity during the twenty-four hours, yet what followed each paroxysm of coughing never occasioned any distress to the patient or alarm to his attendants, and was excreted gradually and regularly, without producing any violent or distressing symptom to the patient; and the removal of the empyema, as shown by diminution in the extent of the dulness and return of respiratory murmur in the affected side, was equally gradual and progressive. But, in the second class of cases, where a direct communication has been established, we have, in addition to the rapid development of the physical signs denoting the accident, (such as the sudden removal of the dulness, with metallic phenomena of the voice and cough, and a tympanitic sound over the portion of the chest previously dull,) *a violent and sudden paroxysm of coughing, usually accompanied with expectoration of a large quantity of pus, so great as in almost every instance to produce the most alarming symptoms of suffocation, and not unfrequently even death from this cause.* This is followed by relief for a time, but a second and third accumulation of the matter takes place, which is again got rid of in the same way; and on each occasion the patient's life is in imminent danger from asphyxia."

[It might seem difficult to distinguish these cases from true pulmonary abscesses, but these latter affections "are not accompanied with very copious expectoration, but, on the contrary, are found to contain an exceedingly small quantity of pus." Pneumonic abscess is, moreover, one of the rarest lesions met with in the lungs, and almost always occupies the base of the organ, while tubercular abscess is situated in the apex. The points discussed in this admirable paper of Mr. Mac Donnell are summed up by him as follows:—]

1. That in cases I., II. and III. we are presented with a new form of empyema, which may be termed "Pulsating Empyema of Necessity," exhibiting some features common to that form of empyema and to thoracic aneurism, and encephaloid disease of the lung.
2. That it may be diagnosed from thoracic aneurisms, by
   a. The history of the case.
   b. The dulness extending over the whole side, the pulsation being only felt in the external tumour.
   c. The absence of thrill.
   d. The absence of *bruit de soufflet.*
   e. The extent and nature of the fluctuation.
3. That it may be distinguished from encephaloid disease of the lung and mediastinum, by

a. The absence of the expectoration resembling *black currant jelly.*

b. The absence of a persistent bronchitis.

c. The absence of a varicose condition of the veins and œdema of the side affected.

d. In cancer of the lung the situation in which the external tumours form, is not invariably confined to the thorax.

4. That copious purulent expectoration in empyema is not always indicative of cavities in the lung; but, on the contrary, is of frequent occurrence in this disease, and seems to be the result of an effort of nature to get rid of the purulent collection by the nearest and readiest outlet.

5. That this symptom, when it results from the above cause, is not attended with the usual symptoms either of abscess of the lungs, or inflammation of the bronchial mucous membrane.

6. That a *true* bronchitis of the sound lung frequently complicates empyema.

7. That still more frequently the sound lung becomes congested, and presents some of the ordinary signs of bronchitis and pneumonia, from both of which it may be distinguished by attention to the rules laid down in the previous part of this communication.

8. That in addition to *depression* of the liver, from mechanical causes, that organ is likewise *enlarged from engorgement with blood* in empyema.

9. This enlargement is not confined to empyema of the right side, but occurs also when the disease is seated in the left cavity of the chest.

10. That this enlargement is identical with that which takes place in other affections of the lungs and heart, where, in consequence of their functions being impaired, an additional duty is imposed on the liver, viz., *that of eliminating carbon from the blood*, as proved by the researches of Tiedemann and Gmelin, Elliotson and Liebig; and as occurs in the former cases, so likewise we observe in this, that the increased size of the organ is due to an additional afflux of blood, whereby its structure becomes engorged, softer in consistence, and darker in colour.

11. This condition of the liver has been observed by myself as proved by dissection, (see Case I.,) and its presence detected in other cases that have recovered. It has also been mentioned by many writers in their accounts of the appearances noticed at the autopsies of cases of empyema, who have recorded the fact, though unaware of its connection with the subject under discussion, and it must now be considered as constituting an additional feature in the diagnosis and pathology of empyema.

12. This condition of the liver, when it occurs in the ordinary diseases of the heart and lungs, has been observed to disappear as soon as the obstruction to the circulation of the blood and want of proper aeration, which gave rise to it, had ceased. So likewise in empyema, its disappearance is one of the first signs which indicate the removal of the effusion, and the return of the compressed lung to the performance of its functions.—*Braithwaite's Retrospect*, Vol. IX., from *Dublin Journ. Med. Sci.*, March, 1844.

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34. *A Tænia evacuated through an opening in the Abdominal Parietes.*—Bremser, Rudolphi, Cruveilhier and others, have questioned the accuracy of the recorded histories of lumbrici making their way through the parietes of the intestines; but the more recent researches of M. Mondiere would seem to prove indisputably the perfect authenticity of the alleged fact, and to show—

1. That lumbrici may work themselves a passage through the parietes of the intestines, by simply separating the fibres of these parietes by means of their head or anterior extremity;

2. That, by reason of the contractility of the muscular fibres of the intestinal parietes, the opening, which has given passage to the worm, is immediately obliterated, and leaves no perceptible trace behind;

3. That, in consequence of this arrangement, a verminous tumour, when it opens outwardly, cannot communicate directly with the cavity of the intestines;

4. That a verminous tumour may be formed at any point of the abdomen,

but that it is most commonly developed about the inguinal and umbilical regions.

Instances of the discharge of Tæniæ in this manner are of much more rare occurrence. Only two cases are on record, as far as we are able to ascertain. One is related by Mouleng, in the *Journal de Medecine*, tom. lvi., and the other by Sporing, in the *Memoires de l'Acad. des Sciences de Suede*, tom. ix. In both these cases, however, the presence of fæcal matters in the verminous tumour, and the permanence of a fistula after the discharge of the tænia through the abdominal parietes, induce the belief that the worm had made its way outwardly through an *ulceration* of the bowels.

The following fact, recorded as it is with all necessary details by Professor Siebold, serves to make it probable that a *tænia* may traverse the parietes of the intestines by merely separating their fibres, in the manner that *lumbrici* are in the habit of doing.

A young man was received into the surgical hospital in consequence of several scrofulous abscesses on different parts of his body. A tumour, which was supposed to be of this nature, occupied the umbilical region. A few days after his admission, Dr. Herz was in all haste summoned to the patient, as the swelling had suddenly burst, and given issue to a tænia, which was alive and moved about quite freely. It was cautiously laid hold of, and slowly and very gradually drawn out to the extent of several ells. No gas, chyle, bile or fæcal matter escaped from the opening; in short, there was nothing to lead to the suspicion that the verminous swelling had any communication with the cavity of the intestines.—*Med. Chirurg. Rev.*, October, 1844, from *Medicinische Zeitung fur Heilk. in Preussen*, 1843. No. 17.

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35. *M. Trousseau on the Signs of Auscultation in young children.*—Every experienced physician must have found—if he has taken the trouble to examine the subject—that auscultation is of comparatively little value in the diagnosis of pulmonic diseases in early life. It is not often that the young patient can be kept sufficiently quiet to enable us to make the proper examination; and, moreover, the respiratory murmur is usually so loud and boisterous—especially upon any excitement—as completely to overpower any abnormal *bruits* that may be present. Fortunately the practitioner does not often feel the need of any extraneous means to aid his diagnosis in the thoracic diseases of infancy: the rational symptoms, as they have been rather absurdly called, being usually quite sufficient. The following remarks were made by M. Trousseau in his clinical lectures at the Hopital Necker.

"If the child be perfectly quiet, the breathing does not sensibly differ from that in the adult; the inspiration is rather noisy, while the expiration is scarcely perceptible; moreover, the former is exceedingly active and slow, while the second, on the contrary, is rapid and purely passive. But, if the child be restless, the inspiration is immediately rapid, and the expansion of the lungs cannot be perceived, while the expiration is, at the same time, slow, and accomplished with the aid of all those muscles which usually concur to the performance of this act. The air issues from the glottis in a small noisy stream. The expiration, therefore, is here essentially active, the very contrary of what it is in the normal state: moreover—and I insist upon this point—it must be very slow, while the act of inspiration is performed rapidly.

"This new rhythm it is very necessary to be aware of, because the character of certain pathological auscultatory sounds, which are thence derived, is more or less altered in consequence. In truth, if, as M. Beau believes—and in this opinion I quite agree with him—the blowing sounds and their numerous modifications really take place and are formed in the larynx, and are transmitted to the ear through the indurated lung by the air in the trachea and bronchi, it must follow that they (the sounds) will be the more distinct and obvious in proportion as the passage of the air is accompanied with the most blowing noise in the larynx. Now this is what we perceive to be the case in the adult. The inspiration is slow, and the expiration is rapid; the inspired air, therefore, passes

more silently through the larynx than that which is expired; and thus it is that the blowing sounds are most distinctly audible during the act of expiration. But if—as in the case of the restless child—the inspiration be performed rapidly instead of slowly, the blowing sounds are heard during expiration when it (the child) is calm, and during inspiration when it is restless and crying."—*Med. Chirurg. Rev.*, October, 1844.

SURGICAL PATHOLOGY AND THERAPEUTICS AND OPERATIVE SURGERY.

36. *Treatment of Obstinate Stricture of the Urethra.* By JAMES SYME, Esq., Prof. of Clinical Surgery, (*Lond. and Edinb. Month. Journ. of Med. Sci.*, Oct., 1844.)—The simple bougie is now, in Great Britain at least, Mr. Syme says, nearly the only means employed in treating strictures of the urethra; "and in the great majority of cases, the success attending its employment leaves nothing to be desired with a view to increasing the facility, safety, or efficiency of the process. But every practitioner of experience must have met with exceptions from the ordinary rule; and on such occasions, instead of finding the contraction readily yield to the progressively increased size of the instruments introduced, could not avoid remarking a peculiar obstinacy of resistance. Along with this obstinacy of disposition, there is usually associated a proportional degree of irritability, which renders the treatment still more embarrassing and also dangerous. For the pressure that is made in endeavouring to overcome the resistance, is very apt to occasion rigors, and a febrile paroxysm, which, instead of passing away like the ordinary attacks of this kind attendant upon stricture, without any local or constitutional derangement, may be followed by swelling of the testicle, abscess of the perineum, or suppuration of the large joints. In the event of these unpleasant effects neither proving fatal, nor interrupting the treatment by exhausting patience, the surgeon may at length succeed in passing a moderate or full-sized instrument, but with little credit or satisfaction, since the strong tendency to contraction exposes the patient to a speedy relapse, and renders a frequent recourse to bougies necessary for his comfort so long as he lives.

In explaining a mode of procedure for easily, safely, effectually and permanently subduing this obstinate and irritable form of stricture, he states, that its ordinary seat is in the anterior part of the canal, where no difficulty attends the passing of instruments; and he adds, that during the course of his fifteen years' hospital practice he has never, either in public or private, found it necessary to puncture the bladder from inability to pass the catheter for retention of urine.

The following case will illustrate Mr. Syme's mode of treatment:—A boy, aged 15, was brought to him on the 18th of May, who had received a kick from a horse, in the perineum, two months before. About a week after this injury, which was so severe as to confine him to bed, the boy had noticed the flow of his urine to be slower than usual and attended with pain. These symptoms had gradually increased, until the water could be voided only by drops, and at the same time could not be retained, so that it was continually escaping, and wetting his clothes. Mr. S. found a stricture of the urethra opposite the scrotum, so tight that it would not admit the smallest probe, and surrounded by a mass of thickened and indurated texture, in the form of a ring, nearly half an inch broad. After trying various instruments without success, Mr. S. passed an exceeding slender catgut bougie through the stricture, and then a succession of larger ones, until at length a metallic bougie of the smallest size could be introduced.

At the end of two months' patient treatment it was found that no more ground had been gained, and that though the patient had ceased to suffer from incontinence of urine, the symptoms in other respects remained without alleviation—the hard ring at the seat of the stricture having suffered no diminution, and micturition being still painful, as well as frequent. On the 19th of

July, Mr. S. introduced a small grooved director into the urethra, and, while it was steadily held by an assistant, compressing the indurated part of the canal between the forefinger and thumb of his left hand—punctured the integuments with a narrow-bladed knife—directed its point into the groove immediately above the stricture—and then pushed the edge forward, until he distinctly felt the whole dense texture give way to it. A full-sized catheter was then passed without encountering the slightest impediment. The loss of blood did not exceed a drop or two, and the wound healed like the prick of a needle, so as to leave no trace of its existence; and at the end of two days, when the catheter was withdrawn, the patient felt in every respect perfectly well. Some days afterwards Mr. S. examined the state of the canal, and found, that not only the catheter passed at the time of the operation, but even a larger one could be introduced without the smallest feeling of contraction. The boy was dismissed on the 29th, with instructions to return occasionally.

Mr. S. says, that nothing can be farther from his intention than to propose division of strictures, by a cutting instrument, as in general preferable to the treatment by bougies. It is strictly to those cases which are found to resist a careful trial of the latter method, that the operation should be limited.

He sums up his views of the subject, by stating the following principles:—

1st. Stricture of the urethra does not always yield to the use of bougies.

2d. Attempts to overcome the resistance of obstinate strictures by the bougie, are apt to occasion serious disturbance, local as well as general.

3d. Strictures of this obstinate nature are generally seated in the anterior part of the urethra, but may occur at any part of the canal liable to contraction, and are usually surrounded by a thickened mass of indurated texture.

4th. Partial division of this ring, either from within or without, affords temporary facility in passing instruments, but no permanent relief from the complaint.

5th. Complete division of the indurated and contracted part is the only effectual remedy.

6th. The best way of effecting complete division, is to divide the contracted portion upon a director, by subcutaneous incision, if the anterior part of the canal is concerned; and by free incision if the stricture be seated behind the scrotum.

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37. *Suture of the Intestine.* (*Comptes Rendus.*)—M. Reybard, of Lyons, has communicated to the French Academy of Medicine a case which he considers one of cancerous tumour of the sigmoid flexure of the colon, in which he extirpated a portion of intestine, and the patient recovered. The details of the case are so imperfect that we shall not give them, but may mention that the cure was not permanent, and the patient died,—but no post-mortem examination was made. The point we wish to notice, is the suture which M. R. employed for uniting the ends of the intestine, and which he supposes to possess advantages over other forms.

Before applying the suture in this case, M. R. armed two needles with a fine double silk thread, and one of the needles carried a small roll of lint, the size of the head of a pin.

"When," says M. Reybard, "I co-aptated the two extremities of intestine, I attached them together near their mesenteric border with the thread of the first needle, and tied a double knot; this was the first stitch of the uninterrupted suture, which was carried by successive stitches to about the middle of the solution of continuity, care being taken to draw the spirals tight and approximate the stitches closely. I then cut the thread at a distance of seven or eight lines from the intestine; I then fastened the thread, not by knotting it, but by including it beneath each point of suture made with the second thread, with which I completed the suture. When the suture was thus completed, that is to say, carried to the mesenteric border of the intestine, I fastened the thread, by tying together in a double knot the ends of the two threads of which it consisted. Before tying them, I passed them through the lips of the wound, including.

however, its peritoneal surface only, in order that the ligature should cut through on that side first; this being done, I cut the threads close to the intestine."

This memoir was referred to a committee, in the presence of whom M. R. repeated his operation on several dogs, and the particulars of which are related by M. Jobert de Lamballe, in his report on behalf of that committee. It will be sufficient to quote the conclusions, as given in the report:

"The important fact," says M. Jobert, "in all these experiments is, that immediate union of the wound did not take place; that there was sometimes diffuse effusion into the cavity of the peritoneum, while sometimes the effusion was circumscribed by the accidental agglutination of the intestines to the wound. At the points where reunion did occur, it was due to the more or less perfect adhesion of the two layers of serous membrane, and not to adhesion of the lips of the wound. Twice the adhesion between the cut surface was established by means of a substance of new formation, which was easily torn, did not occupy the entire extent of the wound, and presented fistulous openings at several points.

"Such, then, was the result of the operation. But what was the result M. Reybard sought to effect? The immediate union of the lips of the wound by first intention, and both of the serous, muscular, and mucous surfaces. And how did he try to effect this object? By a modification of the uninterrupted suture. M. Reybard expected, by an alteration of Pelletier's method, to obtain direct union of the wound; and, secondly, he hoped that the threads, from the manner in which he arranged them, would be detached into the intestine, and expelled without producing fistulous points and consequent effusion. In fact, the first suture being fixed in the interior of the intestine by a large knot, and also by a small dossil of lint, should, by its weight, draw the suture towards the cavity of the intestine; while the second suture, united with the ligatures placed on the mesenteric arteries, and passed with them into the intestine, should be detached in the same direction.

"If M. Reybard had been thoroughly aware of the objection long since made to this plan, and had he not laboured under some mistake as to the results obtained in experiments on animals, he would, doubtless, have hesitated in adopting this description of suture, with which it seems impossible to obtain the direct union of the cut surfaces. The mobility of the parts—the thinness of the parts to be maintained in contact—the numerous causes which may cause separation of the surfaces, such as contraction of the coats of the intestine, their tumefaction, the distension of the intestine by gas—all those reasons sufficiently explain why immediate reunion cannot be obtained by the suture recommended by M. Reybard; and if reunion cannot be obtained in dogs, how could it be effected in man, in whom the coats of the intestines are much thinner? Moreover, how could it be expected that a fistula would not sometimes occur at the points where the threads were placed within the intestine? M. Reybard's idea, if practicable, would be good, but experiments on animals have fully proved its danger.

M. Jobert proceeded to show, by reading extracts from a work published by M. Reybard, in 1827, entitled, '*Memoir on the treatment of Artificial Anus, of penetrating Wounds of the Abdomen and penetrating Wounds of the Thorax*,' that M Reybard himself had formerly, from the result of numerous experiments on animals, come to the conclusion that it was impossible to obtain immediate union of a wound of an intestine."

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38. *Nature and Source of the Liquid which flows from the Ear producing Œdema of the Scalp.* By M. Bodinier. (*Bulletin de la Société Anatomique de Paris*, Nos. March and April, 1844.)—In some cases of fracture of the cranium, there is a discharge of serous fluid from the meatus externus. Though this had been long observed, M. Laugier was the first to call especial attention to it, which he did in 1840. M. Bodinier, having had an opportunity of observing a case of this description, has made it the subject of some interesting observations.

According to M. Bodinier, the serum which flows from the ear in these

cases, presents all the physical and chemical characters of the cerebro-spinal fluid, and is in fact this fluid, tinged sometimes with a little blood. But in the cases where this discharge has existed, on post mortem examination, no rupture of the membranes of the brain has been found through which this fluid could be discharged. The mechanism by which the fluid finds its way externally is then to be discovered. M. Bodinier conceives, that it is effected by endosmose, and all the conditions necessary for the production of this phenomena exist:—thus we have within the membranes of the brain a very thin fluid, the cerebro-spinal; and externally, a collection of blood more or less coagulated, and always denser than the first-named fluid. To verify this explanation M. B. has made some experiments on the dead body, which confirm the correctness of this explanation.

M. Bourdon, in his report on this memoir, expresses the opinion, that the flow of a colourless, uncoagulable serum from the external meatus may present useful indications as regards the diagnosis, prognosis and even treatment of certain fractures of the cranium. Thus it will indicate a fracture of the petrous portion of the temporal bone, with effusion of blood between the dura mater and the bone, lesions in general very serious. It will guide the surgeon in the application of the trephine in cases where he wishes to give issue to the effused blood; in fact, where the symptoms we are considering exist, we may suspect the existence of a collection of blood beneath the temporal fossa.

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39. *Gunshot Wound, where the charge passed from the Navel to the Back without fatal consequences.* By Edward Danville, Esq. (*Prov. Med. and Surg. Journ.*, Sept. 11, 1844.)—A man, about 25 years of age, was accidentally shot. The contents of the gun entered about an inch below the navel, on the right side, and passed out about two inches above the hip and three from the vertebral column; the distance from wound to wound was about six inches. The ignited wadding or cartridge passed through the wound unextinguished, and set fire to the shirt, opposite the posterior opening. Mr. D. could not decide "whether the charge had passed directly through the body, or whether, by the resistance of the abdominal muscles, it had been diverted from its course, and had made a semicircular transit immediately under the integuments." Looking at the case as hopeless, Mr. D. merely defended the wound; there was neither probing nor poking, no endeavour to remove extraneous circumstances. Nature was left to her own operations, and she did her business well. The wound digested properly, portions of garment and other extraneous matter passed out at the posterior opening, and about 40 shot passed with them; 15 or 20 shot remain under the integuments, but the patient suffers no inconvenience from them; and he is now in excellent health.

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40. *Mode of reducing Partial Displacement of the semilunar Cartilages of the Knee-joint.*—Mr. W. H. Sandham, of Cork, describes, in the *Dublin Medical Press*, (Aug. 21, 1844,) the following method of reducing partial luxations of the semilunar cartilages of the knee-joint. Place the patient on his back upon a sofa or the floor, flex the thigh on the pelvis, then place a hard pad, the size of the thick part of the forearm of the patient, or (what is better, and what was done in the present case), make the patient place his own arm under the knee-joint, then flex the leg on the thigh, using considerable force, the effect of which will be to separate the head of the tibia from the condyles of the femur, and give room to the cartilages to resume their natural position, for it is clear from the symptoms that one or other is pinched between these bones. Then, taking care to preserve the flexed position, turn the leg outwards, if it be the internal cartilage which is displaced, and inwards, if the external cartilage be the one engaged, which is readily discovered, for if, when you commence to turn the leg outwards, you immediately give pain, you should cease; the contrary direction, which gives trifling pain, is the proper one. Then (preserving the leg turned,) you gradually, and without using any violence, extend the limb, and you will find the cartilage to resume its natural position. An elastic knee-

cap, together with cold ablution, or the douche, to give tone to the parts, will prevent its recurrence.

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41. *Operation for the Radical Cure of Hydrocele.* By Dr. W. H. Porter.—(*Dub. Journ. Med. Sci.*, July, 1844.)—The author, after trying various operations for the radical cure of hydrocele, has adopted the following, which, he says, "if not altogether free from the objection of a possible relapse, or return of the disease, is not so liable to be followed by the severe and violent inflammations that render the operation by injection so perilous.

"This operation is partly that by incision, the only difference being, that instead of dividing the tunica vaginalis in the entire extent of the tumour, my incision extends only from an inch to an inch and a half in length; and partly that by the tent, an operation first proposed (it is said) by Franco, and revived and recommended by the celebrated Larrey. Having first punctured the tumour in order to examine the state of the parts, and satisfy myself that it is a case in which an attempt to cure the disease radically may be safely made, or at least in which such an attempt would be justifiable, I allow the sac to fill again. When the disease has re-appeared, and the tunica vaginalis is as much distended as it previously had been, I perform the operation thus: Having that part of the scrotum in which I intend to operate, shaved, I make the incision of the length above mentioned, down to the tunica vaginalis, and examine carefully whether any vessel has been wounded that could possibly furnish a considerable quantity of blood. I then pass a bistoury into the tunica vaginalis at one extremity of the incision, out at the other, and divide it by a rapid withdrawal of the instrument. Having completed the incision, a tent of rolled lint, moistened with oil, and secured with a ligature, so as to be easily withdrawn, is introduced. The operation is then completed. The patient may be placed in bed. On the succeeding day I generally bleed from the arm to the extent of ten to twelve, or fourteen ounces, and particularly if the scrotum is red, and shows a tendency to inflammation. Latterly, I have adopted this practice as a preventive in all cases, with apparently the most satisfactory results. The tent is left to become loose, and drop out of itself, which usually takes place on the third or fourth day, and need not be replaced; but it is desirable to break up any adhesions that may be found between the lips of the wound, and to introduce the finger occasionally into the cavity of the tunica vaginalis until the sixth, after which it may be treated with light superficial dressing, and the cure is generally perfect in about three weeks."

Dr. P. says that he has practised this operation for fifteen years, and, comparing it with others, has not much reason to feel dissatisfied. At first, he was in the habit of plunging the bistoury at once into the tumour, and completing the incision to the requisite length, by making it cut its way outwards rapidly and at once. This gave an appearance of great simplicity to the operation, but in some instances caused the fluid to become extensively infiltrated in the cellular tissue, which looks unseemly, although really of no consequence, as it is absorbed in a few hours.

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42. *Two cases of Luxation of the Iliac Bone upon the sacrum.*—The editor of *L'Experience* records, in the number of that journal for 28th September, 1843, two cases of this very rare form of luxation, for which he is indebted to MM. Tavignot and Peste, internes in the service of M. Lenoir, at the hospital Necker. He prefaces them with the remark, that, in the opinion of Boyer, "instances of simple luxation of the bones of the pelvis, from external causes, are so extraordinary, that it would be very difficult to believe in them, had they not been observed by men whose honesty and exactness were well known." Both of these cases presented themselves in the hospital at the same time, and, although one of them is not, strictly speaking, an example of simple luxation, the luxation of the iliac bone being evidently complicated with fracture of the ischium and pubes.

Case I., reported by M. Tavignot. On the 1st of August, a man named Bon-

homme, aged 32, a blacksmith by trade, entered the surgical wards of M. Lenoir. He stated that on the evening previous to his admission, having just entered his house, he went towards a window without any guards, tripped and fell from the third story to the pavement below. He could give no account of the manner in which he fell, having lost his consciousness until the following morning. His condition, when examined upon entry, was as follows. A vast extravasation of blood occupied the whole upper part of the right thigh, and appeared to extend to the corresponding abdominal parietes. He could not move the lower extremity, which was, at first sight, shorter than that of the opposite side; the point of the foot was turned slightly outwards. His urine was passed with difficulty, and was drawn off for two days. He was bled twice, twenty leeches were applied to the thigh, and he was laid upon his back. No accident occurred; the tumefaction, extravasation of blood and pain disappeared, so that the patient, who, at the beginning, could, but with very great difficulty, move himself in his bed, got up on 15th September, and was even able to walk a little with crutches. What was his affection? The following statement will show. The length of the limbs, measured from the spine of the ilium to the external malleolus, on both sides, is exactly the same, and yet the right limb looked shorter than the left, at least two centimeters. The foot is not turned either inwards or outwards. The right anterior superior spine of the ilium corresponds with a horizontal line drawn through the umbilicus, while the left is situated five centimeters below it.

The fold of the right groin is somewhat higher than that of the left. Upon feeling carefully and comparatively, the horizontal portion of the two pubes, it is easily perceived that on the right side, and starting from the symphysis pubis, the os pubis is somewhat higher than on the opposite side; at the same time, a hard resisting body, with an uniform surface, which appears to be situated in the iliac fossa, may be felt from the iliac spine to the spine of the pubes. This surface is nothing else, as is evident, than the horizontal portion of the pubes, which has been elevated about three or four centimeters. Examination *per rectum* enables us to ascertain that the tuberosity of the right ischium is sensibly nearer the median line, at the same time that it is elevated. The right branch of the pubes appears, also, to have mounted at the symphysis upon that of the opposite side, so that it is, in respect to the finger, upon a plane anterior to that of the left side. Behind, we remark, that the fold of the buttock is situated four or five centimeters above that of the opposite side; the tuberosity of the right ischium has mounted at least four or five centimeters upon the median line; the sacrum has its normal configuration, but upon its right edge a very sensible depression is observed at the level of its junction with the ilium; the right buttock, instead of the prominence presented by that of the opposite side, offers a very marked depression. Pressure on this spot is very painful, though there is but slight œdema. The two iliac crests are far from being on the same level. A horizontal line passing from the right one, passes five centimeters above the left. It should be noticed that the posterior spine of the ilium, and particularly the crest of the right side are, as it were, thrown backwards, that is to say, they are situated upon a plane posterior to that of the same parts on the opposite side. The vertebral column appears untouched. There are, at present, no longer any traces of sanguineous extravasation, and every thing leads to the hope that gradually the motions necessary for progression will be re-established, if not entirely, in consequence of the inevitable limping which will remain, at least in a manner sufficient to allow the patient to return to his ordinary occupations.

Case II., reported by M. Peste. Chavanne, a ragman, aged 39, was brought to the Necker Hospital, on the 28th July, having just fallen from the top of a staircase. He had spit blood; several fractures of the ribs were ascertained, both bones of the forearm were broken, and, besides, a severe contusion of the right hip was observed. The pain was excessive, the swelling considerable, the sanguine effusion very great; no movement of the patient could be made, without causing him to utter loud cries, and to resist any effort at examination.

A slight apparent shortening of the limb gave rise, at first, to a fear of fracture of the neck of the femur. M. P. seized the leg, and raising it, easily moved the limb, although the patient, suffering severely, contracted, quite violently, his muscles; the great trochanter followed all the movements of rotation of the femur; no sign of crepitus, no deviation outwards was observed. The absence of these signs caused M. P. to abandon his first idea, and to believe he had to do with a contusion of the hip, complicated with a great extravasation of blood.

Next day, M. Lenoir observed again all these lesions; but the swelling and pain prevented a thorough examination of the state of the hip. The patient had, besides, expectorated pus, and suffered extreme difficulty of respiration, to which symptoms attention was chiefly directed. Under the influence of bleedings, the expectoration of pus ceased; the fractures were united; the swelling of the hip, with the effusion of blood disappeared; but the pain continued, and movements were impossible. A new examination at this time resulted as follows:

The patient was placed upon his back; there was then felt, at the level of the spine of the right pubes, a pretty deep depression, above which, on depressing the abdominal parietes, a pointed, movable, bony tumour could be felt, which appeared to be formed by the horizontal branch of the pubes, which was fractured and elevated; the anterior superior iliac spine was carried more backward and higher than that of the opposite side. A sound passed, without obstacle, through the urethra into the bladder, and the patient experienced no retention of urine. By examination *per rectum*, behind and on the right side irregularities could be observed, which could only arise from fracture of the ischium; above, and also on the right side, by strongly depressing the anterior portion of the rectum, another tumour could be felt, which appeared to be occasioned by a fracture of the pubes: nothing similar on the opposite side. The patient had remained, from the day of his fall, eleven days without a stool.

Upon placing the patient upon his belly, the right buttock was observed to be flattened, soft, depressed; the fold of the buttock had risen about two centimetres, and described a straight line, directed obliquely from above downwards, and from without inwards; that of the left side was horizontal, and described a curved line, with its concavity upwards. The posterior superior iliac spine was about three centimetres higher than that of the opposite side, as were also the crests of the ilium and the ischium. Upon pressing at the level of the left iliac spine, the prominence it forms, and, lower down, the projection of the sacro-spinal ligament, were observable; while at the same points, on the opposite side, a pretty deep depression was found, in consequence of the elevation of the iliac spine, and the rupture of the right sacro-spinal ligament.

An examination of the inferior extremities, showed that that of the right side was shortened, the right malleolus externus being about three centimetres more elevated than the left; but if the measure was taken from the anterior superior iliac spine to the respective external malleoli, the distance was equal on both sides, as it ought to be, since the relations of the coxal bones had changed with the vertebral column alone. All these signs became more evident on placing the patient upon his knees, while bending his body forward.

He was kept in an immovable position. Several days previous to the 15th September, the day on which the case was reported, he had begun to walk with crutches; he bears upon the leg, but gently, it being as yet unable to sustain the weight of the body; he limps, throwing his body strongly over to the sound side; all pain has disappeared. This patient will be cured with a shortening of the right leg. Here, as is evident, the luxation is not simple, being complicated with fractures of the pubes and ischium, which must necessarily occur to enable the coxal bone to experience a general movement upwards, unless separation of the symphysis pubis had occurred. When this separation exists, the symptom noted by Hippocrates, retention of urine, is observed; in this case it was absent, and, indeed, the fracture had left untouched the ligaments which go to the bladder, but there was retention of fæcal matter, which should, perhaps, be attributed to the fracture.

The editor of *L'Expérience* observes, in a note, that these luxations occurred in consequence of very great violence, not in scrofulous patients, easily affected by such a cause, but in strong healthy men, in whom there was no reason to suppose a previous relaxation of the ligaments of the pelvis. The diagnosis of the luxation presented no obscurity, being easily deduced from the elevation of the iliac crest and of the fold of the buttock, the depression of that part, the general shortening of the limb, without alteration of the relations, or of the length of any of its parts, &c. The prognosis of this affection has been considered as very grave by authors, Boyer remarking that, without considering the immediate effects of the external violence, it is constantly followed by an inflammation, of which the consequences may be very serious, as well on account of the extent of the articular surfaces affected, as because it may extend to the peritoneum and the viscera of the pelvis and lower part of the abdomen, or may terminate by a suppuration of the articular surfaces or of the cellular tissue of the pelvis. None of these consequences were, in these cases, observed, and were indicated by him probably rather *à priori*, than from the observation of cases. This surgeon himself cites a case which resembles entirely, in this respect, those which precede.

"The most interesting case known," says he, "of luxation of the hip bones, exempt from these formidable consequences, was observed by Enaux, Hoin and our colleague, Professor Chaussier, and inserted in the collection of the Memoirs of the Academy of Sciences of Dijon. The left os innominatum had been displaced and carried upwards. The inflammatory condition did not allow reduction to be made. After some days, during which relaxing applications and an antiphlogistic regimen were adopted, the replacing of the bones was attempted, but prevented by the return of the pains and inflammatory symptoms. Some days later a new and still ineffectual attempt was made, and was then entirely abandoned. Finally, after prolonged repose, but less so than could have been desired, the patient quitted his bed; and having begun to walk, aided by crutches, the weight of his limb brought about part of the reduction, which had previously been vainly attempted. The cure was perfected and the patient was able to resume his occupation of tiler. This fact proves conclusively," adds Boyer, "that, in cases of this nature, *the most important consideration should not be to seek to cause the reduction*, but to combat, by every possible means, the inflammation and its consequences. Too fortunate to obtain the cure at the expense of whatever possible deformity."

M. Lenoir followed the advice of Boyer; he abstained from any effort at reduction, and, besides, how could you reduce, or, at any rate, how could you maintain, in a state of reduction, a luxation of this kind?

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43. *Singular cause of Error in Diagnosis of Affections of the Knee.*—In the last *Concours* for the chair of Clinical Surgery in the Faculty of Paris, a singular case occurred, the diagnosis of which gave rise to a difference of opinion both amongst the competitors and judges, and in which, moreover, had an error been committed, the result might have been a serious operation. M. A. Bérard, the actual nominee to the chair, thought that he recognized the existence of a foreign body in the knee-joint of a patient affected with hydrarthrosis, and which had fallen to his lot as the subject of lecture. On examination he found, besides an effusion of serum, a distinct circumscribed tumour, of the size of an apricot stone; it rolled under the finger, and was situated at the external side of the knee, above the patella. M. Marjolin, *juge du concours*, did not coincide with this opinion, and affirmed that what was considered as a foreign body was nothing more than an adherent tumour, very often found in those affected with hydrarthrosis: he was ignorant of its nature, never having had an opportunity of dissecting one. M. Malgaigne, one of the competitors, and who, like M. Bérard, believed in the existence of a foreign body within the joint, hastened to examine this tumour on two patients affected with hydrarthrosis, then under his care in the Bicêtre, and he found it exactly the same as in the patient of M. Bérard. One of these patients died shortly after; he thus had an opportunity of determining its nature, and found that the apparently foreign body was nothing

more than a pellet of fat, of a perfectly healthy appearance. M. M. next inquired whether this tumour was entirely the result of inflammation, or whether, previously existing in the natural state, it only acquired an increase of development in consequence of disease? To determine this point he opened a number of healthy knee-joints; in almost all of which he found the above-mentioned tumour, generally on the external side of the articulation, but sometimes on the internal. Its normal existence is no way connected with hydrarthrosis; but it appears to increase in size under the influence of the pain and articular inflammation: it is not found in all subjects affected with hydrarthrosis; but when it does exist during the course of the disease, it continues after the disappearance of the latter; pain on pressure continues longer over the site it occupies than anywhere else, as if the irritation disappeared more readily when the synovial membrane alone is affected than when it spreads to the adjoining adipose tissue.—*Lond. and Edin. Month. Journ. Med. Sci.*, Oct., 1844, from *Encyclographie Méd.*, June, 1844.

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44. *Warty Excrescence near the verge of the anus.* By Edward Daniell, Esq.—(*Prov. Med. and Surg. Journ.*, 9 Oct., 1844.) The excrescence grew on each side of the anus, extending over and filling up the fossa made by the buttocks, and resembled, when those parts were drawn aside, a large orange which had been cleft in twain. It appeared to be non-malignant; but simply an excrescence emanating from the skin itself. As the base of the tumour on each side was equal to its surface, Mr. D. determined to try the effect of a double ligature, employed in the same manner as for common nævus, but only on one side at a time. Sloughing followed this operation, but in so small a degree that Mr. D. saw at once the plan would fail, and therefore resolved to remove the growth by dissecting away the whole of the diseased skin, not only under the tumours, but round about them. The success was perfect; there has been no return whatever of the disease.

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45. *Enormous Steatoma removed from the Shoulder.* By Edward Daniell, Esq. (*Prov. Med. & Surg. Journ.*, 9 Oct., 1844.)—The tumour had existed thirty years, and occupied a space commencing from the top of the shoulder, running over the deltoid muscle, dipping slightly into the axilla, and stopping about the middle of the humerus. It was so exceedingly painful at times, that the man's rest was disturbed by it, and it prevented him from lying on the affected side.

The tumour was removed in two minutes and a half; it was as usual in these cases, a mass of fat, but on opening it, was discovered to have in its centre a deposit of bony matter—a complete ridge of ossific deposit, of about three inches in length. The tumour weighed two pounds and a half, entire, and as many little portions of fatty matter were taken away after the removal of the bulk, it is fair to infer that the whole tumour was little short of three pounds. It was only necessary to pass a ligature round the main vessel, which might perhaps be about the thickness of a crow-quill. The patient did well, and has not suffered in the least since the operation.

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46. *Operations for removal of Ovarian Tumours.*—Dr. Jeaffreson has given, in the *London Medical Gazette*, (Oct. 18th, 1844,) a table of 74 cases, in which the removal of ovarian tumours has been attempted, and the following are the results:

In 37 cases the tumour was removed, and the patients recovered.

In 24 cases the operation was followed by the death of the patient: of these 24 fatal cases, the tumour was removed in 14, could not be removed on account of adhesions in 6, and was found to be other than ovarian tumour in 4 cases.

Thus, again, in 74 cases in which the operation for extraction of ovarian tumour has been undertaken, it has been completed in 51 instances, in 14 out of which 51 instances it has been followed by death, and in 37 by the successful removal of the tumour and the recovery of the patient; whilst out of the 74

cases selected, it was found impossible to carry out the intentions of the operator in 23; or, in other words, the diagnosis was not sufficiently accurate to enable the surgeon to foresee the impracticability of carrying out his intentions. Of these 23 cases, 13 recovered with life, to remain *in statu quo;* 10 died. The cause of failure was impossibility of removing the tumour on account of adhesions in 14 cases; no tumour was found in 3 cases; and the tumour proved to be other than ovarian in 6 instances.

"One cannot but be struck," he remarks, "at the very first glance, with the prodigious proportion—23 out of 74 cases—in which an insufficiency of diagnosis led the operators to attempt that which was in reality impracticable. When such a surgeon as Lizars, backed by all the talent nearly of Edinburgh, has opened the abdominal cavity to remove an imaginary tumour, it cannot be doubted but that many and great difficulties surround this part of the subject."

The following are Dr. Jeaffreson's deductions:

"1st. It has been sufficiently established, that the extirpation of ovarian tumours is practicable, and that nature is competent to effect the great processes of repair, which so serious an operation demands.

"2dly. That as the mortality attendant upon these operations has been shown to be greatly heightened by taking into consideration the cases in which, from previous errors in diagnosis, the tumours have been found to be other than ovarian; or, being ovarian, from adhesions or other causes could not be removed; increased diligence and attention are required on the part of the surgeons to the previous diagnosis.

"3dly. That the modes of operating, after-treatment, &c., demand the *careful* and *impartial* consideration of the surgeon, as greatly affecting the possibility of completing the operation, as well as its ultimate result.

"4thly. That as whatever future improvements may diminish the risks of the operation, it must ever be considered one of great imminence, it cannot be recommended excepting in those cases in which the bulk of the tumour is productive of much misery and inconvenience; and is already inducing such constitutional disturbance as to threaten some probable limit to the existence of the sufferer.

"5thly. That however much assistance he may derive from general rules, the propriety of operating in each case must be decided with a due consideration of the merits and peculiarities of the case in question. A few rash operations must inevitably bring discredit upon the measure, however useful and valuable it may be when conducted with prudence and judgment.

"6thly. The fluid forms of tumour are the most appropriate for operation. They are generally the most rapid in their growth, and frequently refill with great rapidity after their evacuation by paracentesis. The risks of adhesion are less; as also the probabilities of mistake in diagnosis; or of other organs being diseased. Remedies, too, have the least power in the cure of this form of affection. In the monolocular variety, the operation could hardly be recommended, so long as tapping afforded perfect relief, and the fluid was very slow to re-accumulate. The multilocular form of disease is by so much the more appropriate for extirpation, in that tapping is attended with greater risk, and is calculated to afford but a limited degree of relief.

"7thly. The mixed forms of tumour are the least appropriate for extirpation; and proportionately so as they contain a greater amount of solid matter. There is a greater risk of adhesions, and also of errors of diagnosis; the opening required for their removal must be large in proportion to the mass of solid. The more solid tumours, if of an inert character, are slower in their growth, and *may* never induce much suffering or risk of life. Their cure is sometimes effected by nature or well-directed medical skill. Their growth sometimes is suddenly arrested, and they continue stationary and comparatively innocuous.

"8thly. Somewhat in exception to the last conclusion respecting the more solid but indolent ovarian tumours, it becomes questionable whether their removal may not be sometimes desirable, when their presence has induced ascites. Ascites thus caused can rarely be permanently cured by medical or

surgical means, so long as its exciting cause continues in existence; and life will, I believe, rarely be much prolonged under such circumstances. In the 45 cases above related, in which ovarian tumours were removed by the major operation, ascites is actually stated to have complicated 8 cases; in all the ovarian tumours were of the mixed character; and in 6 out of the 8 cases, the operations were successful.

"9thly. Extirpation cannot, with propriety, be recommended when the least suspicion exists of the malignant character of the disease; or when it is of strumous origin, and is connected with scrofulous disease of other organs, as the absorbent glands, joints, internal viscera, &c.

"10thly. In recommending the operation, it may not be amiss to view it as a means of removing an enlarged growth, which, whether solid or fluid, is producing misery and risk to life, chiefly by its mechanical inconvenience of bulk, or its drain upon the system: hence the surgeon will be alike cautious of operating in those cases in which the local disease, indolent and slow in its growth, produces comparatively little inconvenience and risk; and in another and very opposite condition of things, in which, without his being able to discover precisely the cause, the constitution appears shattered and impaired, in a degree disproportioned to the extent and importance of the local disease. In such cases, there is too great reason to fear that there is more mischief going on in the system than would be removed with the extraction of the ovary. The cases No. 4 and 6, as related above, are to this effect, in which it is hardly reasonable to suppose that the removal of the ovaries, even at an early stage of the disease, would have long retarded their fatal termination."

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47. *Removal of a Diseased Ovary.*—Dr. Frederic Bird records, in the number of the *London Medical Gazette*, for August 16th, another case in which he has successfully practised excision of a diseased ovarium. The patient was twenty-one years of age, and had laboured under the disease three years. The method of operating was the same as in his previous cases. The length of the incision was four inches; the cyst was punctured, and after its contents were evacuated, its pedicle was transfixed by an instrument carrying a double ligature, firmly secured, cut through, and the tumour removed. The entire weight of the tumour was twenty-nine pounds. Its contents "had a specific gravity of 1007, a light amber colour, and contained but a very small quantity of albumen. The tumour appeared to have had its origin in a single vesicle of De Graaf, as lying upon its external surface could be distinctly seen the greater part of the ovarium, which, with the exception of increased density, did not present any marked evidences of morbid change. The Fallopian tube passed up along the posterior part of the tumour to the extent of ten inches, not closely attached, but apparently connected by a fold of broad ligament; its fimbriated extremity was free, and very perfect. The sac was abundantly covered by minute vessels running in the same direction, but not freely anastomosing; they were chiefly derived from one large trunk, which passed immediately beneath the Fallopian tube, but also in part from two branches of less size contained in that portion of the broad ligament in contact with the sac. The thickness of the walls of the cyst varied, being thinner at the superior portion, denser at the inferior, the parietes in the latter region having a thickness of nearly half an inch. Within the parent cyst a large number of secondary cysts were developed, for the most part of small size, and containing fluid secretion of darker colour than that by which the former was filled. The whole internal surface had a dark congested hue, and the part corresponding to the attachment of the pedicle was of an almost black colour; this appearance being in a great measure due to the presence of many venous trunks, of rather large size, into which numerous smaller vessels passed."

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48. *Ununited fracture successfully treated by Acupuncture.*—The *Gazette des Hôpitaux* quotes from the *Giornalle per servire ai Progressi*, a case of ununited fracture successfully treated by acupuncture. The patient was a young man, twenty-six

years of age, of good constitution. Both bones of the forearm were fractured, and after nine weeks no union had taken place. M. Wiesel then introduced between the two ends of the ulna two needles, sufficiently long to traverse entirely through the false joint, and retained them in this position for six days. They were then withdrawn, their presence having produced pain and considerable swelling of the part. Fifteen days afterwards, M. Wiesel repeated the same operation on the radius. A simple bandage was applied to the limb, and in six weeks reunion was complete.

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49. *Luxation of the Forearm forwards without fracture of the Olecranon.*—This is supposed, by most surgeons, to be impossible. M. Monin has, however, recorded an example of it in the *Journal de Médecine de Lyon.* It occurred in a boy, between six and seven years of age, and resulted from a fall. It was reduced by the following plan. The shoulder was fixed by bands. The forearm being then strongly bent on the arm, M. M. placed his hands in the bend of the arm with his fingers crossed on the palmar face of the forearm, and drew this part downwards and backwards.—*Journ. de Méd. et de Chirurg. Prat.*, Feb., 1844.

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50. *Influence of Traumatic Lesions of the Spinal Cord on diseases of the urinary passages.*—M. Segalas read a memoir on this subject to the French Academy of Medicine, founded on two cases of traumatic lesion of the spine, of which the following is an abridged account.

In July, 1839, a shoemaker, named Lamarre, fell into a cellar at Saint Denis: he was taken up insensible, and brought home to Paris. On examining the dorsal region, the apophysi of the fifth and sixth dorsal vertebræ were found abnormally prominent; there was complete paralysis of sensibility and myotility as high up as the umbilicus, and retention of urine and fæces. The catheter was introduced several times a-day, and the urine remained clear; a slough formed on the sacrum, but the body having been supported by stays and straps, it gradually healed. After fifteen months' treatment, Lamarre left Paris to live in the country; there was then retention of the urine and fæces, and the paralysis was as complete as at first. He is now still in the same state; he experiences occasionally, as it were, electrical shocks, which make his limbs jump; but the only sensation experienced is that of a trembling in the abdomen. The fæces are retained, but he labours under a kind of incontinence of urine. He has become very fat, the paralyzed limbs participating in the change. For some months after the accident, he was troubled with frequent erections; they have since subsided, but he has now venereal desires. He is in excellent spirits.

In May, 1840, a jeweller, thirty-seven years of age, fell from a tree on the loins. He immediately experienced a pricking sensation in the abdomen and the lower part of the body, and on attempting to rise, found that the abdominal limbs were paralyzed. There were no external lesions; the urine and fæces were retained. In spite of lengthened treatment, the paralysis remained the same six months after the treatment. A sound was left permanently in the bladder, and changed every ten days. At the end of the third month, the urine, which till then had been clear, became catarrhal, and the sounds were incrusted with phosphatic concretions. Under the administration of strychnine and the tincture of cantharides, sensibility began to return, firstly in the thighs, and then in the legs and feet. In the space of a few weeks the patient moved his limbs, and he became able to walk with crutches. During this time incontinence of urine succeeded to the retention. A phosphatic stone had formed in the bladder; it was destroyed by lithotomy. With this patient, erections commenced a few days after the accident. He is now able to accomplish the sexual functions; the testicles present their ordinary volume. He still labours at the present time under incomplete paralysis.

Following out the idea suggested by these cases, M. Segalas has made a number of experiments on living animals, in order to ascertain what is the physiological influence of the spinal cord on the functions of the genito-urinary organs. He firstly analyses the facts by which Krimer, quoted by M. Ollivier

d'Angers in his work on "Spinal Diseases," endeavours to establish, experimentally, that the secretion of the urine is modified by lesions of the spinal cord; and details his own experiments, which prove, on the contrary, that every portion of the spinal marrow may be successively destroyed without the secretion of the urine being suspended or even sensibly diminished, provided, on the destruction of the cervical portion, respiration be artificially kept up.

M. Segalas then examines what is the influence of traumatic lesions of the spinal cord on the composition of the urine. He has found, as the result of his experiment, that the section of the cord, either in the lumbar region or at the lower part of the cervical, has no constant influence on the quantity of urea in the urine, or on that of the phosphates, of the sulphates, of the uric acid, or of the mucus, and that if the urine be modified by this operation, which he considers doubtful, it is in a very diversified manner. He therefore thinks that the modifications which Krimer says occur in the constitution of the urine, after severe injury of the cord, cannot be considered constant. M. Segalas recapitulates the results of his researches and his opinions on the subject in the following propositions:—

1. Traumatic lesions of the spinal cord do not prevent the secretion of urine.
2. Nor do they directly modify its composition.
3. The change in the composition of the urine which shows itself subsequently, is the result of the catarrhal inflammation of the bladder. This inflammation is itself produced by the lengthened presence of the urine in the organ, or by the action of the permanent sound, and that with or without the assistance of other causes.
4. Traumatic paralysis is always primarily complicated by retention of urine. The incontinence which follows, if proper treatment be not resorted to, is, at first, the result of over-distension of the bladder, and subsequently of the inflammation which supervenes.
5. Traumatic lesions of the spine do not arrest the secretion of sperm.
6. They do not sensibly alter its composition.
7. They are often attended with erections without desires, which are sometimes followed by desires without erections.
8. They do not always prevent sexual intercourse.
9. They do not prevent conception or gestation, but when such lesions exist, artificial means become necessary to accomplish parturition.

By these propositions M. Segalas evidently means to assert that the spinal cord exercises little or no influence on the functions of the kidneys, the testicles, or the ovaries, whereas it keeps under its immediate control the bladder, the seminal vesicles, and the uterus.—*Lancet*, Oct. 19, 1844.

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51. *On the Treatment of Syphilis by tartar-emetic.*—Dr. Willebrand was induced to make trial of tartar-emetic in the treatment of syphilitic complaints, in the military hospitals, from observing the rapid removal of a blenorrhœa in a patient who was using that medicine for an attack of rheumatism. On trying the efficacy of this medicine on a large scale, he found that urethral discharges were, in general, removed in from six to fifteen, or, at the most, twenty days. It was, however, in the cure of true syphilis that this medicine was found of superior efficacy. Cases of primitive chancre were cured by the internal use of tartar-emetic alone, in from ten to twenty-days, no application having been made to the sore but simple water dressing. In a few cases, in which there was much induration of the base of the sore, a cure was not effected. In thirty cases of secondary affection, under the form of ulcerations of the throat, &c., all symptoms of the disease disappeared in from eleven to fifteen days. The tartar-emetic was, however, continued, as a precautionary measure, for five or six days longer, after which the medicine was discontinued; and though two, and, in some instances, three years have since elapsed, no relapse has occurred among all these cases. Most of the cutaneous affections rapidly and easily yielded; but some of the more inveterate ones, as the pustular and squamous syphilitic eruptions, required from twenty to twenty-eight days for their re-

moval. In some of these, from the antimony disagreeing, it was requisite to intermit its use.

In all the cases, the tartar-emetic was administered internally in the same manner, viz., half a grain six or eight times a-day. The first doses generally produced vomiting; but by the second day tolerance was produced. When this large dose seemed to disagree, an eighth of a grain was given in the same manner, but then it often failed to effect a permanent cure. Cleanliness, repose, an equable temperature, and regulated diet were the only adjuvant means used; and Dr. Willebrand thinks that these cases show, that, in very many cases, the tartar-emetic may be substituted with advantage for the more dangerous mercurial treatment.—*Edin. Med. and. Surg. Journ.*, October, 1844, from *Gaz. Méd. de Paris*, April 6th, 1844.

52. *Case of recovery from wound with Hernia of the Lung.* By Dr. Barbieri.—A boy, thirteen years of age, fell from a tree upon the point of a hay fork, which tore up the right side of the anterior part of the chest between the fifth and sixth ribs. The wound was transverse, about three inches in extent, and through this projected a considerable piece of the lung, also wounded in a transverse direction. There was a frequent cough with a gurgling sound in the bronchial tubes, but no bloody expectoration. The usual phenomena of a severe accident were present. The lung was reduced, the lips of the wound brought together by suture, and, by following an antiphlogistic regimen, the patient recovered without a bad symptom.—*Ibid.*, from *L'Expérience*, August, 1844.

53. *Popliteal Aneurism in a child.*—Professor Syme relates, in the *Lond. and Edin. Month. Journ. Med. Sci.*, (October, 1844,) a case in which he successfully tied the femoral artery for popliteal aneurism, in a boy only nine years of age. The disease had been first noticed two years previously. Sir Astley Cooper states that the earliest age at which he has met with aneurism was eleven years.

54. *Epidemic Erysipelas.*—Dr. Rognetta states, in the number of his *Annales de Thérapeutique Médicale et Chirurgicale*, for June last, that erysipelas prevails in all the hospitals of Paris. At the Hotel-Dieu, at Beaujon, at St. Louis, and at La Charité, erysipelas, he says, is general. The slightest contusion, the least irritation, the puncture of an abscess, promptly give rise to erysipelas, which often runs a fatal course.

At the Hôpital Vénériens, the disease, in many cases, affects the peritoneum, and terminates fatally. At La Charité, it constantly assumes the phlegmonous form, and is very formidable, and frequently fatal. Of four patients recently treated in the service of M. Gerdy, for contusion of the elbow, every one was seized with severe phlegmonous erysipelas, with sphacelus of the subcutaneous cellular tissue. At St. Louis, the epidemic has assumed even a still more terrible form, that of *hospital gangrene*. At the Hotel-Dieu punctures from bleedings, or from leech bites, inflame, suppurate and terminate in fatal phlebitis; or they induce erysipelas, which extends to other parts and occasions very dangerous symptoms. Abscesses of little consequence, which at other times would heal in a few days, become a source of phlegmonous erysipelas after being opened, which requires a long treatment and the protracted stay of the patients in the hospital, even, indeed, if they do not fall victims to it.

The treatment has been antiphlogistic in all the hospitals. M. Gerdy has employed deep scarifications; M. Blandin leeches, in great numbers, along the course of the vessels and over any engorged glands which may exist. M. Jobert treats the disease with frictions, with an ointment of nitrate of silver, which he regards as a powerful antiphlogistic, and M. Rognetta says that the disease is *constantly* limited by it. M. Jobert employs the ointment of three degrees of strength, according to the intensity of the disease; the proportions are four, eight and twelve parts of the salt, to thirty parts of lard. This ointment is copiously applied over the whole part affected with the disease, even the whole body if necessary, which gives to the patient the appearance of a negro, but no

injury has ever resulted. M. Rognetta says that he has seen, in the service of M. Jobert, cases of extremely severe erysipelas arrested and cured, as if by enchantment, solely by the use of this ointment.

55. *Mortality attending the Operation of Tying the large Arteries.*—Mr. Thomas Inman, of Liverpool, gives, in *The Lancet*, (October 5th,) the following table, drawn out after carefully examining all the medical periodicals for a long series of years:—

Artery subjected to ligature, &c.	No. of cases.	Deaths.	Proportion.
Cases collected by Phillips from the works of Boyce, Lancisi, Scarpa, Pelletan, &c., where old operation was performed:—			
Femoral tied,	22	6	1 in 3¾
Humeral tied,	7	1	1 in 7
Hunterian operation:—			
Ligature of arteria innominata,*	6	6	all die
Ligature of subclavian,	40	18	1 in 2
——— of carotid,	40	11	1 in 4
Abdominal aorta,	3	3	all die
Common iliac,	8	3	1 in 2⅔
Internal iliac,	4	2	1 in 2
External iliac,	27	9	1 in 3
Femoral,	42	7	1 in 6
Total,	199	66	1 in 3

56. *Fibrous Tumour of the Parotid.* By Prof. Vanzetti, of Karahoff, (Russia.) (*Annales de Chirurgie*, Aug., 1844.)—The patient was a man 40 years of age, and the tumour weighed three and a half pounds. It was extirpated, and the patient left the hospital cured on the 20th day, with only a slight paralysis of the face.

57. *New Operation for Varicocele.*—M. Videl (de Cassis) has communicated to the French Academy of Medicine the following operation for varicocele:—

An incision, of a line or two in length, having been made in the scrotum, so as to include a fold of the skin, a small silver thread is passed behind the veins of the cord, and a second thread, of the same metal, through the same apertures, anteriorly to the vein. The extremities of the two threads are then united and twisted, on each side, until the space which separates the veins is so reduced as to strangulate them.

The twisted metallic thread, which thus embraces the spermatic veins, is then turned a certain number of times, so as to roll the veins on its axis. When this rolling of the veins appears to have been carried to a sufficient extent, the two free extremities of the metallic ligature are brought forward, crossed and twisted on a small roller bandage. A metallic sound, or a piece of stick, being placed in the angle formed by the union of the twisted extremities, constitutes a kind of tourniquet, by the means of which pressure is applied to the veins, and daily increased, until they, and the parts comprised between the thread and the bandage, are entirely divided: this generally takes place in from ten to fifteen or twenty days, and the cure is completed in the space of from one to two months.

M. Velpeau, in behalf of a committee to whom the subject was referred, in

* The only successful case, if so it may be called, is related by Mr. Porter, of Dublin, where the artery was cut down upon and found too much diseased to bear the ligature; the wound closed readily, and the aneurism was cured.

his report states, that they do not consider M. Vidal's operation easier, less complicated, or less dangerous than those usually resorted to, but that it may prove more efficacious in its subsequent results from an extensive destruction of the veins.

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58. *Mortality attending the Operation for Hernia.*—Mr. Thomas Inman has published in *The Lancet* (Oct. 5) the following table, showing the mortality attending the operation for hernia:—

Where, or by whom recorded, &c.	No. of cases.	No. of deaths.	Proportion.
In Sir A. Cooper's work on Hernia,	77	36	1 in 2
By Travers,	14	8	1 in 1½
Dewar, of Dunfermline,	17	4	1 in 4
Scarpa (on Hernia),	16	5	1 in 3
Lawrence (on Hernia),	22	7	1 in 3
Clement,	8	3	1 in 2⅔
Hey (he performed the operation forty times, but no detailed account is given of all the cases),	12	6	1 in 2
Wurtzburg, from 1816 to 1842,	56	24	1 in 2½
Recorded in different periodicals as isolated cases, &c.,	88	30	1 in 3
Malgaigne's, Hospitals of France:—			
Patients between fifty and eighty years of age,	97	70	1 in 1¼
Other ages,	86	44	1 in 2
Guy's Hospital, from September, 1841, to December, 1842,	19	10	1 in 2
Scotch hospitals during 1843,	11	3	1 in 3⅔
Cases witnessed by the author,	6	3	1 in 2
Liverpool Infirmary, for two years,	4	1	1 in 4
Liverpool Northern Hospitals—nine years,	12	6	1 in 2
Total,	545	260	1 in 2

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59. *Immovable Bandages of Starched Paper for the Treatment of Fractures of the Limbs.*—By M. Laugier.—Bands of starched paper are arranged as in Scultets' bandage, and form three super-imposed layers. The limb is placed upon these, and after the fracture is reduced, the bands are applied. Other bands of paper, also starched, are applied around the foot, and extending up the leg so as to form a boot, accurately moulded to the part. After drying, which is obtained in twelve hours in summer, and twenty-four hours in winter, by the aid of heated balls or bricks, this apparatus forms a very solid and light mould, which allows the patient to move in bed. Before drying, this bandage is firmer than the ordinary Scultets': the patient, however, must be perfectly quiet for some hours after its application. It can never be too tight; it is suited to every stage of fracture, even to fractures complicated with wounds. But in the latter case, the limb must be first enveloped in gum-elastic cloth, in a single piece, to preserve the paper from the pus, which softens it. Surgeons who have used this, are pleased with it. It may be employed in all cases to which the immovable apparatus is applicable:—it cannot, however, be used for effecting compression: it is useful principally to secure the immobility of fragments, and painful parts. It commends itself by its lightness and its cheapness; the latter of some importance for poor patients, in the country, and in charitable institutions poorly provided with bandages.—*L'Expérience*, 1 Aug., 1844, *Extrait des titres du Docteur Laugier.*

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60. *Gunshot wound of the Chest,—evacuation of the ball per anum.*—(*L'Expérience*, 4 July, 1844.)—Dr. Cox records in the *Repertorio medico-farmaceutico de la Societad de Emulation de Barcelona*, March, 1844, the case of a boy fifteen years of age, who was shot from a height, the ball penetrating the chest on the left side, at the middle of the sixth rib, fracturing this bone. He was taken to the Hospital of Barcelona. Fever came on, with bloody expectoration, difficulty of breathing, and pain in the chest; notwithstanding an energetic treatment, the respiration became more and more difficult, and the patient died on the twelfth day. But what was curious, was, that the patient passed the ball per anum on the sixth day, without ever having presented the slightest symptom of any irritation in any part of the alimentary canal, or of effusion of any fluid in the thoracic or abdominal cavity, or of lesion of the diaphragm. On *post mortem* examination it was found that the ball had passed from the base of the lung into the stomach, and adhesions had formed between the diaphragm and stomach. The opening in the stomach was round, the whole of the left lung adhered to the costal pleura, and was infiltrated with pus.

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61. *Discharges from the Ears.*—Mr. Wilde, of Dublin, has written [*Dublin Journ. Med. Sci.*, Jan., 1844,] a most excellent treatise on the causes and treatment of otorrhœa, chiefly dwelling on the affections of the external tube and external surface of the membrana tympani. There are few diseases which are more frequently neglected and carelessly treated than those of the external ear; and few which, when allowed to proceed, entail more inconvenience on a patient during the remainder of his life. In simple otorrhœa Mr. Wilde paints over the surface with a solution of nitrate of silver, ten grains to the ounce, applied with a fine camel's hair pencil, either to the whole or a portion of the surface, according to the extent of the disease. This is repeated every third day, and in the interval the ear is syringed night and morning, and oftener if the discharge is copious, with plain tepid water, by means of a gum-elastic bag, which, when used by friends, is much preferable to the usual piston syringe, and at night a slightly astringent lotion is dropped into the ear till it fills up the meatus, and allowed to remain there for a few minutes. For this purpose we may use liq. plumbi diacet ʒi. to one ounce of water or rose water; or weak solutions of alum, copper, or chloride of lime. But otorrhœa is often exceedingly difficult to cure, owing to its being caused by morbid vascular growths, such as granulations on the membrana tympani, which are allowed to proceed undiscovered. In such a case the part appears quite red and vascular, and Mr. Wilde recommends the application of the solid nitrate of silver, rubbed over the part about every second day, or oftener if necessary; and for this purpose he uses a very neat little instrument which is five and a half inches long, consisting of a silver tube, cut spirally for three-fifths of its length, and having an aperture on the side near the extremity. In using this *port-caustic*, a little nitrate of silver is melted over a lamp on a small platina ladle, and then, when about cooling, the end of the *port-caustic* is dipped into it till the aperture and extremity are filled and coated over with the caustic. We often find, however, that discharges from the ear are kept up by polypi, which it becomes necessary to remove; and for this purpose Mr. Wilde recommends a little instrument, first recommended, we believe, by Mr. W. Robertson, surgeon to the Kelso Dispensary. It is a small snare-like apparatus, consisting of a fine steel stem, with a movable bar sliding towards the handle. It is so constructed that a noose made of fine silver or platina wire may be pushed down to the polypus, so as to surround and ensnare it. The morbid growth may thus be safely and cautiously taken away, either in part or wholly, and by the regular application of the armed *port-caustic* from day to day, all trace of the growth may ultimately be extinguished.—*Braithwaite's Retrospect*, 1844.

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62. *Bursal Swelling of the Wrist and Palm of the Hand.* By James Syme, Esq. —There are few subjects of surgical practice that have occasioned more trouble and disappointment than morbid distension of the bursa, which accompanies the

flexor tendons of the forearm, in their course under the annular ligament of the wrist, towards the fingers. The resistance of the ligament prevents any enlargement of the bursa where lying under it; but the wrist and palm become distended, so as to occasion an unseemly swelling, and weakness of the hand. The fluid effused into the cavity is generally associated with numerous small cartilaginous-looking bodies, of a lozenge or lenticular figure.

In treating this form of ganglion, the means generally employed prove very unsatisfactory in their effect. Blisters and pressure are altogether unavailing. Punctures either heal without producing any improvement, or remain open, so as to occasion obstinate sinuses. Incisions of larger extent, caustics, and setons, have all been carefully employed with very uncertain benefit, and frequently great suffering; indeed I have known the continued irritation so induced prove fatal. As the treatment of similar derangements in other parts of the body is not attended with such troublesome consequences, the question naturally presents itself, what local peculiarity is concerned in causing the obstinacy of this particular case? The reply suggested by what has fallen within my observation is, that the constriction caused by the annular ligament produces the effect in question, by preventing the portion of bursal sac corresponding to it and the subjacent tendons from undergoing the healing process. Impressed with this conviction, I tried the following experiment, the complete success of which encourages me to hope that the method pursued will be found to afford an effectual remedy for a complaint which has hitherto proved so troublesome.

Janet Preston, aged 20, was admitted on the 13th of February, complaining of pain and weakness in her left hand. The wrist and palm of the hand were much swelled, but not discoloured, and pressure on these parts caused distinct fluctuation, with the jarring sensation that characterizes effusion into the bursal sheaths. She stated that pain had been first felt about two years before, and that for the last twelve months she had had hardly any use of the hand, in consequence of the swelling and weakness attending it.

I made a free incision from the wrist into the palm of the hand, dividing the annular ligament. This gave vent to a quantity of glairy fluid, with many small flat cartilaginous-looking bodies, and exposed to view the flexor tendons, separated and surrounded by thickened bursal membrane. The cavity was filled with dry lint, supported by a bandage moderately compressing the hand and wrist. In the subsequent treatment care was taken to prevent protrusion of the tendons, by drawing the edges of the wound together, and applying a compress over the seat of the annular ligament. Not the slightest disagreeable symptom followed the operation, and three days after it, the patient was able to sew, which she had been prevented from doing for many months previously. In the course of a few weeks the wound healed, and the limb was in every respect perfectly sound.—*Lond. & Ed. Month. Journ. Med. Sci.*, Oct. 1844.

OPHTHALMOLOGY.

63. *Epidemic Ophthalmia.* (*Archives Générales*, June, 1844.)—M. Morant, in a memoir, addressed to the French Academy of Medicine, on an epidemic ophthalmia, which prevailed in the depot for young criminals at Mettray, states, that in almost every case the disease commenced as coryza, and that the Schneiderian membrane was inflamed in a great number of cases. This led him to believe that inflammation of that membrane was a frequent cause of ophthalmia, especially in young persons, and induced him to treat the disease by the application of nitrate of silver, either in a solid state, in concentrated solution, or in the form of ointment to the mucous membrane of the nose twice daily during the acute stage of the disease, and subsequently once a day. This treatment, he asserts, succeeded while all the means usually employed failed.

[While we cannot but feel some doubts as to the correctness of M. M.'s

pathological views, it is far from improbable that the treatment he has adopted may be useful in some cases, and it is certainly worthy of a trial.]

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64. *New method of curing Lachrymal Fistulæ and Chronic Lachrymations reputed incurable.* By Dr. Paul Bernard, (*Revue Méd.*, Dec., 1843.)—This method consists in the ablation of the lachrymal gland, and Dr. Bernard relates one case in which he resorted to it with success. The patient was a man 30 years of age, who had had lachrymation of the left eye for ten years, during which period he underwent various methods of treatment without receiving any relief. The eye was so constantly suffused with tears as to render vision with it indistinct. After trying various means without success, Dr. B. excised a portion of the lachrymal gland. This having afforded some relief, though it did not effect a cure, two months afterwards Dr. B. extirpated the remainder of the gland. The result, he says, was perfectly satisfactory. Dr. B. says, that though every vestige of the left lachrymal gland was removed, the left eye was more moist than the right, and, what is still more extraordinary, that the left nostril, which had been dry for ten years, has become at times moist.

[It will require much stronger evidence of the advantages of this operation, than has been adduced by Dr. B., to lead us to prefer it to the already recognized means of treating lachrymation, and which we have reason to regard as much more frequently successful than is represented by him.]

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65. *Cyst attached to the anterior surface of the Iris.*—A very interesting case, in which there was a cyst attached to the anterior surface of the iris, is recorded in *The Lancet*, (Aug. 31, 1844,) by John Dalrymple, Esq. The subject of the case was a fine, healthy-looking girl, 16 years of age. When about 13 years old, she first observed a clear, transparent speck, the size of a pin's head, at the inner border of the cornea, within the anterior chamber of the left eye, unaccompanied with pain or redness. It remained stationary, and her vision was unaffected until six weeks ago, since which time it has increased rapidly, and her sight has rapidly declined. Her health was perfectly good. When she came under Mr. D.'s care, there was in the anterior chamber of her left eye, "a roundish or slightly oval body, cystiform in appearance, semi-transparent or gelatinous-looking, adherent to the ciliary border of the iris, at the inner side. It was attached also to the internal junction of the cornea and sclerotica, but its superior, outer and part of its inferior border, appeared to be free. This body was not unlike a dislocated lens just commencing to become opaque, but not so round, nor was it movable. It occupied rather more than half the anterior chamber, extending in front of the pupil, which was nearly shut out and dimly seen through the semi-transparent mass. The tumour appeared to be in contact with the concave aspect of the cornea, but the outer border free and slightly undulated or crenated, the extreme edge of which was of a bright brown colour, while the rest of the mass was merely of an opaline tint. The outer margin of the pupil was just seen behind, and the iris, so far as it was visible, appeared bright, of a healthy hazel colour and possessing its ordinary fibrous aspect. There were a few tortuous vessels on the lower part of the sclerotic coat, but, upon the whole, little or no vascularity was present. The eye, however, was irritable, with a good deal of lachrymation.

"The actual character of this tumour not being very distinct, she was placed upon a mild alterative mercurial course, rather for the purpose of watching the case, than with any hopes of absorption taking place. During the few succeeding weeks the tumour appeared but very slowly to increase, and she was directed to go home, and return again in the commencement of the warm weather. She, accordingly, again presented herself in the early part of May, and the mercurial plan, combined with counter-irritation, having failed to check its progress, she was admitted an in-patient, under the care of Mr. Dalrymple, on the fith of June, 1844.

"It was now resolved to puncture the tumour, its cystiform character being more apparent from the body becoming more transparent as it increased; and

it was hoped, if the contents could be evacuated without discharging the aqueous fluid of the anterior chamber, the increase of this latter fluid, on the removal of the pressure of the tumour, would cause the sides of the cyst to collapse, and, perhaps, prevent its re-accumulation. A broad needle was introduced, on the 5th of June, into the lower and inner part of the cyst, at the point where it seemed most adherent to the circumference of the cornea. The needle being turned upon its edge, a semi-opaline fluid, of a saponaceous feel, was evacuated, and the cyst, sensibly shrunk, left the pupil nearly wholly exposed. Two-thirds of the iris were now seen, the pupillary margin was quite free, and vision at once restored.

"Slight irritation followed this puncture, and required the application of a blister, but on the following day the cyst had filled again nearly to its former size.

"On the 8th the pupil was again partially seen, and from this time to the 19th of June, the cyst gradually decreased, until about two-thirds of the pupil were visible. The cyst had also become much more transparent, and it could now be seen that a considerable opening in the iris existed at the inner side, around the margin of which the cyst was firmly adherent. In proportion as the cyst diminished, the aqueous fluid of the anterior chamber increased, and all irritation resulting from the operation subsided.

"On the 22d of June the needle was again introduced, and the whole of the contents of the tumour were evacuated, and on this occasion nothing was left but the flocculent-looking membrane of the cyst. It was not deemed advisable to attempt the extraction of this, inasmuch as it was hoped the pressure of the increasing natural aqueous secretion would cause a total collapse of the walls of the tumour.

"On the 26th the cyst appeared perfectly empty, and its fine membranous walls were flattened, apparently adhering to the concave aspect of the cornea, and so transparent that the iris could be easily seen through this filmy obstruction. It was now evident that a considerable gap existed on the inner side of the iris, reaching nearly to the pupillary edge, which at this part was irregular, and rolled up, as it were, upon itself. The opening which thus existed in the plane of the iris was traversed by fibrinous or membranous bands, and to this the base of the cyst evidently adhered.

"*July* 6. The cyst remained empty, its membranous parietes still more transparent. The pupil round, black and unobstructed; vision good; no irritation existing."

MIDWIFERY.

66. *Cæsarian operation performed with success both for the mother and child; rupture of the uterus and of the abdominal parietes thirteen months subsequently, during a second pregnancy; delivery of the fœtus through this spontaneous opening; complete recovery of the mother.*—This very extraordinary and, we believe, unique case, is related, by Dr Prael, director of the Obstetrical Institute of Hildesheim, in *Neumeister's Allgem Repertorium der gesam. Deutsch Med. Chirurg. Journalistik*, for June, 1844. We abridge the details from the *Archives Générales*, for Sept. 1844.

The subject of the case was a woman, twenty-eight years of age, who had a deformed pelvis, resulting from rickets, which prevented delivery per viam naturalem. The Cæsarian operation was performed on the 11th January, 1842, and a live infant extracted, which, however, died when nine days old with trismus. The mother slowly recovered without any alarming symptoms. The wound did not, however, completely cicatrize for two months. The menses reappeared about the middle of August, and the patient left the hospital in good health, on the 17th of September. The cicatrix was five inches long, and from a half to three-quarters of an inch broad.

Notwithstanding all the dangers of her first labour, she became again preg-

nant on the 1st of January, 1843. For the first four months which followed, she was so well that she was only rendered sensible of her pregnancy by the motions of the fœtus in the twenty-first week of utero-gestation; these movements were accompanied with very severe pain in the back, but continuing only a few minutes, and which distressed her the less, as she had experienced the same when sixteen years of age. Nor was she any more concerned about a tumefaction of the skin with a small ulcerated spot which had appeared some time before upon the right side of the abdomen, about a hand's breadth from the cicatrix left by the Cæsarian section. This ulceration seemed to enlarge daily, discharging pus and sometimes blood; it gave little or no pain. On the 14th July, having taken cold, she had fever with pain in the sides, back and abdomen. Dr. Schrœder, who was called to see her, felt so distinctly the infant through the abdominal parietes, that he at first thought it an extra-uterine pregnancy. That night she had pains resembling those of labour, but they soon ceased. She soon recovered from this attack, but the motions of the fœtus were no longer perceptible. On the evening of the 18th July, she experienced an urgent desire to go to stool and to urinate. She got out of bed, walked a few steps, and called her sister to bring her the chamber. Suddenly the abdominal parietes burst with a slight cracking sound, and through the rupture the fœtus presented, enveloped in its membranes. Being alone, she endeavoured with her two hands to prevent the escape of the mass. A midwife called at the instant, removed the fœtus which had escaped by the rupture and was dead, and put the patient to bed. Dr. Schrœder arrived an hour afterwards. He found a large transverse rupture of the abdominal parietes, five inches long, a hand's breadth below the umbilicus. The membranes and a part of the omentum protruded on the right side, and on the left was the cord and the placenta still adherent to the internal surface of the uterus. Dr. Prael saw the patient soon afterwards. She was at this time in a satisfactory condition; she was, it is true, pale, and pulse small, but there was nothing in her words or actions which indicated any great danger. The hemorrhage had not been abundant; the wound was not painful, it merely smarted slightly. It gaped so much that, at first view, doubts might have been felt whether it was transverse or perpendicular. The right side of the wound was occupied by a violet tumour, the size of the head of a new-born child, formed by the membranes filled with coagulated blood, and a portion of omentum. The placenta in part visible, and a portion of the cord occupied the other part of the wound. None of the intestines had prolapsed.

As the umbilical cord was so slender as to give rise to fears that it would break by the least pulling, Dr. Prael introduced three fingers into the uterus through the abnormal opening. That organ was already contracted, so that the direction of the wound in it could not then be determined with certainty. Dr. Prael detached, not, however, without difficulty, the placenta which was attached to the posterior parietes of the uterus. The blood was removed, the lips of the wound in the uterus brought together, and the omentum replaced. Not being able to use sutures to the abdominal wound, its lips being swollen, unequal, and œdematous, he kept it closed with adhesive straps placed perpendicularly, and completed the dressings with soft compresses and a bandage.

The reaction which followed this severe lesion was moderate. The wound assumed, however, an unhealthy appearance, discharged copiously a bloody sanies, and its margins became gangrenous. Nevertheless, except the stools, all the functions were performed normally; even the lochia flowed by their natural route. Gradually the appearance of the wound became better, it discharged healthy pus, and under a tonic and invigorating treatment, the cicatrization went on, and by the 5th October, it was complete. Six weeks after this accident menstruation reappeared, and about the end of October, she menstruated a second time without pain, the discharge less abundant, however, than at the first time.

67. *Case of Gravid Uterus passing into the Sac of an old Inguinal Hernia.—Cæsarian Section.* By THEOPHILUS FISCHER, M. D.—On the 12th October, 1832, Magdalene Münger, forty-four years of age, from Wohlen, living in the parish of Kœnitz, was taken as an urgent case to the surgical department of the hospital (Insel) at Berne, under the superintendence of Dr. Isenschmid, (professor of surgery), in whose absence, at that time, the duties of the institution were conducted by the author of this paper.

Upon examining the patient, it was found that she had had seven children, six girls and one boy. Ten years previous to her marriage she had an inguinal hernia on the right side, which was neglected, she never having worn a truss. In every pregnancy the woman suffered much inconvenience from the hernial tumour, which frequently became very large.

She was now pregnant of her eighth child, and at the sixth month of her pregnancy. The hernia had been incarcerated for several days previous to coming into the hospital, but her sufferings had been subdued by cataplasms of linseed meal and cold applications, by which means the hernia was reduced. After the hernia was reduced, the most severe pains came on suddenly in the whole abdominal region, in the loins and lower extremities; and, during these pains, the impregnated uterus got out of its natural position and protruded through the inguinal ring, covered by the hernial sac. The gravid uterus was easily distinguished, and of an egg-like form, resting upon the thighs to the length of eight inches downwards, and six inches in circumference. The woman, lying upon her back, was free from pain. No menstrual discharge had taken place for six months. On examination per vaginam, the os uteri was found, as is generally the case in pregnancies of six months, only a little retracted, higher and more inclined to the right side. The functions of the bladder and rectum were natural. The abdomen was small, relaxed and wrinkled. By applying the stethoscope to the lower and anterior part of the tumour, and placing the ear on the orifice of the instrument, regular pulsations were discoverable. From this time the patient never abandoned her bed, always maintaining her position on the back; and in this position she was tranquil, and had no return of pain up to the full period of her pregnancy, although the dimensions of the uterus gradually increased to such a degree that, on the 19th January, 1833, it measured twenty-five inches and two lines in circumference, and in length twenty-two inches and ten lines, the circumference at the base being considerably smaller. On the above-mentioned day, at six o'clock in the evening, the woman felt herself unwell: she had pains in her loins and abdomen, and contractions in the uterus; the orifice of the uterus became dilated, and, between six and seven o'clock, the waters per vaginam escaped, upon which the pains increased prodigiously. In consultation, Dr. Leuch decided upon performing the Cæsarian section, which he performed about nine the same evening, in the presence of Professors Isenschmid, Hermann, Emmert, the medical men Nichans, Fischer, and some students.

The woman, placed on her back, Dr. Leuch standing on the right side of the patient, formed on the lower half of the tumour a fold of the integuments on the right side, making an incision longitudinally, seven inches in extent. By a second incision, he opened the hernial sac, and the fundus of the uterus; the placenta, which adhered at this part, was divided by the same incision, and bled profusely, after the opening into the uterus was enlarged. The membranes were also divided, out of which the remaining part of the waters ran. The operator then introduced his hand, and found a living, healthy, well-formed child, with its head at the fundus of the uterus, and with its feet towards the hernial ring. The funiculus umbilicalis was divided and tied, the placenta detached, and the child given to the care of a nurse. The wounded uterus bled very much, and retracted itself to at least three-fourths of its former extent. The wound of the integuments was now made clean, and brought together by ligatures. At the lower part an opening was left, to admit of the escape of blood. Upon the incision were placed some straps of adhesive plaster, and compresses of lint, and the whole secured by a spiral bandage lightly. The

patient being now made clean, was left to rest. Her countenance was pale and shrunk; on a sudden she had hiccup, and severe pain in her back and loins; her pulse was weak, and she had given to her a draught of liq. anod. miner. Hoffm. tinct. cinnamon. et tinct. opii.

Before midnight the bandage was made looser on account of severe pain; and at two hours after, the bandage was removed entirely. A small artery bleeding showed itself in the hernial sac, and some coagulated blood was found in the cavity of the uterus and its vicinity. Towards the morning of the 20th of January, the patient was more quiet, but very weak, and ether was given to her. On that day a constant vomiting followed after every thing she took, without distension and sensibility of the abdomen; and with these symptoms the patient died at between three and four o'clock on the morning of the 21st. The *sectio cadaveris* was made thirty hours after death.

The circumference of the tumour, taken horizontally, measured seventeen inches; and longitudinally, twenty-one inches nine lines, and the base eighteen inches eight lines. In the cavity of the abdomen it was discovered that hemorrhage had taken place from the wounded uterus—the ligature applied to the incision of the hernial sac being found in its proper place. The inguinal ring was so much extended as to admit an open hand to pass through with ease. The hernial sac was above, and to the right, and the uterus below, and to the left part of the ring. The incision in the uterus was found to the right, and in front. The colon was found detached, but lying in the hernial sac, and measuring twelve inches in its outer circle. A small fold of this intestine was found adhering to the inguinal sac posteriorly. The pelvis was large and well formed.

The infant is still living, and healthy.—*Lond. and Edin. Month. Journ. Med. Sci.*, January, 1844.

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68. *Polypus of the Uterus adherent to the Placenta successfully removed.* By M. Aubinais.—A woman, ætat. 35, was afflicted, after two natural deliveries, with frequent floodings, accompanied with pains in the loins. This state continued for five years, when she became pregnant a third time. When M. Aubinais was called to her, he found that the fœtus was expelled, the cord broken, and the placenta retained in the uterus. The insertion of the cord into the centre of the placenta was felt by the finger passed along it; but at twenty-seven millimeters to the left of its point of insertion, the presence of a tumour of the size of a large hen's egg was discovered, which made the placenta swell out into the shape of the bottom of a lamp. The placenta was detached from left to right, and the polypus was found to adhere to it, which explained the rupture of the cord. When the placenta was pulled, the polypus was drawn with it, as well as the uterus. M. Aubinais firmly supported the uterus with one hand on the hypogastrium, then seizing the polypus, which appeared to him to have an elongated pedicle, he twisted it, and brought it away without much difficulty. The entire placenta came away with the polypus, and without much hemorrhage. The adhesions of the polypus to the placenta were examined, and found to be strong, particularly over a space of the size of a franc piece. Several very small vessels had kept up the circulation between the polypus and the placenta, and on pressing these bodies at the same time, these vessels were seen to fill with blood. The patient was soon cured, and she has since been confined, making her fourth time, without any untoward symptom.—*Lond. Med. Gaz.*, Sept. 20th, 1844, from *Gaz. Méd. de Paris*, Sept. 7, 1844.

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69. *Juice of the Urtica Urens in Uterine Hemorrhage.*—M. Mérat read a report to the French Academy of Medicine, (23d of July,) on a communication of M. Ginestet, relative to the hemostatic properties of the urtica urens. It appears from the cases related in the memoir, a brief analysis of which is given by the reporter, that the juice administered in several cases of uterine hemorrhage, in

the dose of from two to four ounces, produced a considerable and rapid diminution of the hemorrhage, and in some cases a complete cessation of it after a single dose. The reporter is of opinion that this remedy formerly used, but which has fallen into disuse, is worthy of further trials.—*Gaz. Méd. de Paris*, 27th July, 1844.

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70. *Prolapsed Uterus—Pregnancy.*—Dr. P. Darbey, of Drogheda, has communicated to the *Dublin Medical Press*, (Nov. 6, 1844,) the case of a woman forty-two years of age, who, having had *prolapsus uteri* for some years, and being now for the seventh time pregnant, was suddenly seized on the 23d August, with labour pains. On examination, Dr. D. found, on his arrival, the uterus lying between the patient's thighs, presenting a livid appearance, and the os uteri having a dry feel, and no symptoms of dilatation. The labour pains were strong, violent cramps in the lower extremities. Dr. D. immediately took thirty ounces of blood from the arm, and administered the following draught: ℞ aq. menth. sativa, ℥iss.; tinct. opii. acetat. gtt. 4; syrup cort. aurant. ℥ij.—M.; which procured some rest, and appeared to have checked the cramps and other bad symptoms. After a comfortable repose of two hours, labour pains returned, the os uteri gradually and steadily dilated, with a sufficiency of mucous secretion, and a healthy but small-sized child was born. The placenta followed after a short time, and the uterus being replaced and suitably secured, nothing untoward followed.

A similar case is noticed in our number for July last, p. 257; but in that incisions were made into the os uteri to effect delivery.]

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71. *Dropsy of the Amnion.*—Dr. Robert Lee relates in his "*Clinical Midwifery*" seven cases of dropsy of the amnion, in five of which there was some mal-formed or diseased condition of the fœtus or its involucra, which rendered it incapable of supporting life subsequent to birth, and the same circumstance has been observed in most of the cases which have been recorded by authors. In two only of the cases was the formation of an excessive quantity of liquor amnii accompanied with inflammatory and dropsical symptoms in the mother; and in none did the amnion, where an opportunity occurred for making an examination, exhibit those morbid appearances produced by inflammation, which M. Mercier has described, and which led him to infer that inflammation of the amnion is the essential cause of the disease. When unconnected with a dropsical diathesis in the mother, Dr. L. was disposed to consider it merely as one of the numerous diseases of the fœtus and its appendages which sometimes occur independently of any constitutional disorder in the parents, and with the causes of which we are wholly unacquainted. The diagnosis of dropsy of the amnion is, Dr. L. observes, most difficult in the simple form of the disease, where the effusion has taken place to a great extent, and when complicated with ascites. In both these cases, fluctuation more or less distinct can be perceived on percussion of the abdomen, but we can obtain from this sign no positive information, to enable us to determine whether the fluid be contained in the cavity of the peritoneum, amnion, or in both these membranes. In the simple form of dropsy of the amnion, where the quantity of fluid is not excessively great, the fluctuation is obscure, deep-seated, or wholly imperceptible. The presence or absence of fluctuation is, therefore, no certain test of the existence of the disease, and the only mode of arriving at a correct diagnosis, both in its simple and complicated forms, is by instituting an examination per vaginam. By this proceeding we shall not only be able to ascertain the changes in the uterus consequent on impregnation, but the accumulation of a preternatural quantity of fluid in the membranes of the ovum. This latter circumstance is known by the unnatural enlargement of the body of the uterus, by the state of its cervix, which is prematurely obliterated, by the ballottement of the fœtus, which is remarkably distinct, and by the sense of fluctuation in the vagina on percussion of the abdomen. In ascites complicated with pregnancy, Scarpa has observed in his memoir on this subject, published

in 1817, that the symptoms are entirely different from those of hydrops amniosis. The regular form of the fundus and body of the pregnant uterus, he states, is not evident to the touch in these cases, from the enormous distension and prominence of the hypochondria, arising from the great quantity of fluid interposed between the fundus and posterior part of the uterus and abdominal viscera.—The urine is scanty and lateritious, and the thirst is constant. The abdomen, upon percussion, presents a fluctuation obscure in the hypogastric region and in the flanks, but sufficiently sensible and distinct in the hypochondria, and strong and vibratory in the left hypochondrium, between the edge of the rectus muscle and the margin of the false ribs. These symptoms, with the previous history of the patient, may afford us, in doubtful cases, some assistance in the diagnosis, but our principal dependence must be placed on the information acquired by a careful examination of the state of the cervix and body of the uterus.

Having arrived at a correct diagnosis, the treatment of dropsy of the amnion becomes simple. Our object ought to be to relieve the urgency of the symptoms occasioned by the over-distension of the abdominal cavity, and the only safe mode of giving this relief is, by puncturing the membranes, and evacuating the superabundant liquor amnii. In four of the cases related, this was had recourse to with success, and in one the life of the child was preserved. In another, the mother's life would have been saved had this been done at an earlier period. In all the other cases, the spontaneous rupture of the membranes was followed by alleviation of the symptoms, and the birth of a child rendered by disease incapable of supporting life; a further proof that the evacuation of the liquor amnii is attended with beneficial consequences. The artificial rupture of the membranes, if the operation be carefully performed, is not more dangerous than the spontaneous rupture, and if the ease and safety of the mother can be insured, we ought not to be induced to delay its performance by apprehension for the life of the child, since from its diseased state, in the greater number of instances, it will be still-born. The only difficulty that can arise respecting the treatment, is in cases of dropsy of the amnion complicated with ascites. Even here I would recommend the evacuation of the liquor amnii, as the best remedial measure that can be had recourse to, since it relieves the leading symptoms produced by the pressure of the excess of fluid in the peritoneum and amnion on the neighbouring organs, which are the only symptoms necessary to be counteracted. After delivery, the effusion into the peritoneal cavity, if it depend on utero-gestation, will gradually disappear.

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72. *On the Causes and Treatment of Uterine Hemorrhage, in the latter months of Pregnancy.*—By Robert Lee, M. D.—(*Clinical Midwifery.*)—The placenta may adhere to any part of the inner surface of the uterus, and flooding never takes place during pregnancy, unless the placenta has been separated from the uterus. When the connection between them is destroyed, blood flows from the open arteries in the lining membrane of the uterus, and from the great semilunar-shaped openings in the veins, until the uterus contracts, and coagula of the fibrin are formed. The contractions of the uterus, and the formation of the clots within its cavity, and in the orifices of the arteries and veins of the uterus, after the separation of the placenta, are the principal means employed by nature for arresting the flow of blood. The semilunar or valvular-like edges of the veins at their termination in the inner surface of the uterus, are well adapted to ensure the effect of arresting the current of blood through these passages by the contraction of the fibres with which they are everywhere surrounded. All the different efficient means which have been recommended for checking the discharge in uterine hemorrhage, operate either by exciting contraction of the uterus, or by promoting the coagulation of the blood itself within the vessels. The placenta is most frequently attached to the upper and posterior part of the uterus, but in some cases it adheres to the circumference of the internal orifice,

and from this peculiar situation of the placenta, arises one of the most dangerous varieties of flooding in the latter months of gestation.

In 1609, Guillemeau stated that the placenta sometimes presents or comes before the child, that this gives rise to a dangerous hemorrhage which nature is unable to suppress, and that the most safe and expedient means of arresting it, is to deliver immediately by passing up the hand into the uterus and turning the child. He has made no observation from which it can be inferred that he believed the placenta to have been originally adherent to the upper part of the uterus, and to have descended thence to the cervix. This was an erroneous hypothetical opinion adopted by Daventer at a much later period. In those cases of uterine hemorrhage in which the placenta did not present, but had been detached from the fundus uteri, Guillemeau had likewise recourse to artificial delivery, and for the knowledge of this practice he states that he was indebted to Ambrose Paré. The symptoms and treatment of cases of placental presentation were accurately described by Mauriceau, and in all cases of hemorrhage from this cause he recommends immediate delivery. He has related seventeen cases of uterine hemorrhage in the latter months of pregnancy from presentation of the placenta, and in sixteen of these delivery was accomplished artificially by passing the hand through the opening formed by the separation of the placenta from the uterus, rupturing the membranes, and turning the child. Two women died after this operation, and one who would not consent to have it performed, died undelivered. Mauriceau has likewise recorded the histories of thirty-seven cases of uterine hemorrhage, in which the placenta did not present, but had adhered to the upper part of the uterus, and been afterwards detached. Twenty-one of these cases occurred before 1682, and in most of them he delivered artificially by turning the child, as he had done in the sixteen cases of placental presentation, and as Paré and Guillemeau were accustomed to do in all cases of flooding in the latter months of pregnancy. On the 9th June, 1682, he says, "I delivered a young woman in the eighth month of pregnancy who had uterine hemorrhage caused by a violent fall upon the knees four days before. During her whole labour she had only slight pains in the abdomen which produced no effect. As the hemorrhage was moderate, and the uterus was gradually dilating, I committed the labour to nature, contenting myself with rupturing the membranes of the child." There is no account given of the circumstances which induced him to make this important change in the treatment of cases in which the placenta did not present, and to adopt that improved method of treatment which was at a later period so strongly recommended by Puzos, and considered by him as his own discovery. In eight cases Mauriceau ruptured the membranes and left the labour to nature with the happiest results. He recommends the same practice when hemorrhage occurs in the first stage of labour.

Portal's Treatise, 1685, contains an account of eight cases of uterine hemorrhage, in which he found the placenta not merely at the mouth of the womb, but adhering to the whole neck of the uterus. In several of these cases he felt the placenta adhering all round to the internal orifice of the uterus. In the account of his sixty-ninth case he says, "Je sentis l'arriere faix, qui se presentoit, et qui estoit fort adherant, et attaché à l'orifice de la matrice de toutes parts." In the histories of all the other cases, the same circumstance is expressly stated. In those cases the treatment employed by Portal did not differ from that which had been employed by Paré, Guillemeau, and Mauriceau, the propriety of artificial delivery by turning being then as completely established as at the present time, and the important fact demonstrated that the hemorrhage is produced by the placenta adhering to the neck of the uterus. Petit, Giffard, Rœderer, Smellie, Levret, and W. Hunter, were all well acquainted with the fact, and deduced from it the correct practical inferences deduced from it. Dr. Rigby states that "Giffard has more than twenty cases where the placenta was found at the os uteri, but he plainly supposes that it had not been originally fixed there, for he says, 'It is customary in floodings to find the placenta sunk down to the mouth of the womb.'" "I beg leave," says Giffard, in the his-

tory of his last case of uterine hæmorrhage, (1731,) "before I proceed to give any further account of the delivery, to give my opinion in a point of midwifery in which I differ from most authors that have wrote on the subject. It is generally believed that the ovum, after its impregnation and separation from the ovarium, and its passage through the tuba Fallopiana always adheres and is fixed after some time to the fundus uteri; in this case the placenta adhered, and was fixed close to and round about the cervix uteri, as I have found it in many other cases, so that upon a dilatation of the os uteri a separation has always followed, and hence a flooding naturally ensues." "When I had passed my whole hand into the uterus, I found the placenta adhering all round the os internum, so that I was forced to separate it on one side to reach the membranes, which I tore." "The edge or middle of the placenta," says Smellie, "sometimes adheres over the inside of the os internum, which frequently begins to open several weeks before the full time, and if this be the case, a flooding begins at the same time, and seldom ceases entirely until the woman is delivered. The discharge may, indeed, be terminated by coagulum that stop up the passage; but when these are removed, it returns with its former violence, and demands the same treatment that is recommended above." "If in time of flooding," he adds, "she is seized with labour pains, or if by every now and then stretching with your fingers the os internum, you bring on labour, by which either the membranes or head of the child is pushed down, and opens the os internum, the membranes ought to be broke, so that some of the waters may be discharged, and the uterus may contract and squeeze down the fœtus. This may be done sooner in those women who have had children formerly, than in such as have not been in labour before. If, notwithstanding this expedient, the flooding still continues, and the child is not like to be soon delivered, it must be turned immediately; or if the head is in the pelvis, delivered with the forceps; but if neither of these two methods will succeed, on account of the narrowness of the pelvis or the bigness of the head, this last must be opened and delivered with the crotchet. In all these cases let the parts be dilated slowly, and by intervals, in order to prevent laceration." These are the most clear, concise, and accurate rules which have been laid down by any author, for the treatment of hemorrhage in the latter months of pregnancy, and in the first stage of labour.

Dr. Lee relates thirty-five cases of placental presentation, in seven of which death took place "soon after delivery from loss of blood, and in six, at periods more or less remote from the time of delivery by uterine phlebitis, or inflammation of the deep structures of the uterus. In one with distorted pelvis the uterus was lacerated. In eleven there had been more or less rigidity of the os uteri, with dangerous hemorrhage, and turning was performed in several of them, where the whole hand could not be introduced into the uterus. The tampon or plug was not beneficial in any of them, and the ergot did positive injury. Rest in the recumbent position, and the application of cold, were the only means found really useful in checking the hemorrhage till delivery could be effected. Dr. Joseph Clarke met with four cases of placental presentation in the Dublin Lying-in Hospital, one of which proved fatal. Dr. Collins met with eleven in 16,654 labours. Two of the women, where the children were turned, died. Dr. Ramsbotham has related nineteen cases of placental presentation, eight of which proved fatal. In five the placenta was only partially adhered to the cervix, and in three the expulsion of the placenta took place before the child. Out of one hundred and seventy-four cases of placental presentation recorded by different authors, Dr. Churchill states, that forty-eight proved fatal, or nearly one in three, and that in eighty-five cases of uterine hemorrhage where the placenta was at the fundus uteri, twenty-four proved fatal, or nearly one in three."

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73. *Retained Placenta.*—Dr. Robert Lee has recorded in his *Clinical Midwifery* the histories of seven fatal cases of retained placenta, and nineteen in which more or less difficulty and danger were produced from portions of the placenta

or the entire mass being left within the uterus beyond the usual period. The best method he says of preventing the occurrence of similar accidents, is to apply the binder immediately after the birth of the child, to make pressure with the hand over the fundus uteri at short intervals, and slight traction upon the cord downward and backward in the direction of the hollow of the sacrum. By these means the upper part of the uterus usually goes on contracting till the placenta is detached, and pressed down through the os uteri into the vagina. In all cases, whatever the cause of the retention may be, if the placenta at the end of an hour is not detached from the uterus and expelled, it should be withdrawn artificially by passing the hand along the cord to its insertion, expanding the fingers, and grasping the whole mass, or as much as can be seized and brought away. The difficulty of removing portions of placenta, adhering with more than the natural firmness to the uterus, is only increased by delay.

74. *Diagnosis of Inverted Uterus and Polypus.* By M. Lisfranc.—In inversion of the uterus, the bladder and a portion of the intestines are lodged in the concavity formed by the depression of its fundus; if, then, a curved catheter is passed into the bladder with its concavity downwards, and its beak is directed to the most depending part of this organ, the extremity of the instrument will be readily felt by the finger in the vagina, if the case is one of inversion, unless, indeed, the intestines have become adherent to the womb in such a way as to prevent the catheter penetrating into the depression formed by the inverted organ—a circumstance of very rare occurrence. M. Lisfranc thinks, however, that the best way of discriminating between polypus and inversion of the uterus, is to seize and depress the tumour with two fingers passed into the vagina, and then introduce the index-finger of the other hand into the rectum; no tumour can be felt through the gut above the one which is grasped in the vagina, if the case is one of inverted uterus; but if, on the contrary, we feel through the rectum a second tumour, similar in shape to the uterus, above the vaginal tumour, then this latter tumour is a polypus. In one instance, indeed, M. Lisfranc was misled by this mode of examination; he diagnosticated inversion of the uterus, but the patient having died, a small fibrous tumour was discovered implanted on the uterus, which was flattened and reduced to the tenth part of its natural size.—*B. & F. Med. Rev.*, July, 1844.

75. *Statistics of Obstetric Practice.* By Prof. Murphy.—1. *Menstruation.*—Dr. Murphy has ascertained *the age* at which this function commenced in 559 individuals. This inquiry has been already pursued in 450 instances by Mr. Robertson, and in 1160 by Dr. Lee. A total of 2169 cases shows,

"That there is a great variety in the age at which the catamenia first appears; 9 years [14 cases], and 23 years [1], seem to be the extremes, the most frequent period of its occurrence is between the ages of 12 and 18; and of those recorded, it commenced, in the greatest number of instances [417], at 15."

The interval of the catamenial function was recorded in 591 cases by the author, and by Mr. Robertson in 100. In 557 of those cases the interval was found to be 28 days; in 105 it was 21 days; and in the remaining 29 it was irregular, varying from 14 days to 42. It should be observed, that Dr. Murphy's inquiries were addressed to pregnant females, in whom probably the menstrual period would be found to have been more regular than in the same number of females taken indiscriminately.

2. *Pregnancy.*—Its duration was made by the author the principal subject of inquiry; some curious and useful facts are the result. The number of cases in which accurate information was procured was 186; in each the catamenial period was noticed; and

"To prevent error arising from uncertainty as to the exact date of conception, this interval was deducted from the whole number of days of pregnancy; thus, 328—28 would make the duration of pregnancy 300 days."

The results thus ascertained establish 301 *days as the average limit of gestation.* To this there are, however, three remarkable exceptions. In the first, a fully developed child was born after an interval of 261 days. The evidence in this instance, (an unmarried female, stating herself to be pregnant after one connection,) is not to be wholly relied on. In two other cases the duration of pregnancy extended to 342 and 352 days, or, deducting the menstrual period, to 324 and 314 days respectively. The histories of those cases given in detail are such as to lead to the conclusion that pregnancy may be prolonged to this extended period—a fact of great importance to the medical jurist. The relation of pregnancy to previous menstruation is referred to, and some exceptional cases are recorded. Thus, in one instance, pregnancy occurred without previous menstruation; in another, menstruation ceased on marriage, and in a few cases periodic discharges resembling the catamenia were present during pregnancy.

A remarkable coincidence between the periods of human gestation and those of the cow, as deduced from the tables drawn up by Lord Spencer, some valuable practical points connected with the use of instruments, the treatment of hemorrhage, and the origin of puerperal fever, remain to be noticed.—*Lancet*, Nov. 30, 1844, from *Dublin Journal.*

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

76. *Arsenic in the Earth of Cemeteries.*—Ollivier D'Angers communicated the following to the Royal Academy of Medicine in July, 1844.

He was directed, with Barse and Devergie, to analyze the viscera of two persons supposed to be poisoned. The case occurred at the Court of Assizes of Epinal, (Vosges.) A husband and wife had died, as was supposed, through the criminal acts of their respective partners. A chemical examination, by the experts of Epinal, showed no arsenic in the organs of the female, but it was found in the stomach and intestines of the male. Doubts were thrown on the correctness of the analysis, and the case was carried to another term of the court.

When the body of the female was reinterred, after the first exhumation, a heavy rain was falling, and it slipped from the hands of the grave-digger. It could not be replaced in the coffin, but was covered with the earth of the cemetery. The body of the male was, however, put into its coffin.

The bodies of both were dug up a second time, and the viscera sent to Paris, to be examined by Ollivier and his associates. In those of the female, although thoroughly exposed to the solvent power of water, percolating through the earth of the graveyard, no arsenic could now be detected, but it was readily attained on analyzing the liver of the male. *The earth of the graveyard proved to be arsenical.* Our author deems this a strong confirmation of the opinion advanced by Orfila, viz., that it exists in these situations in combinations insoluble in water, thence that a body, buried in arsenical ground, cannot become impregnated by that substance.

Still, if decay be so far advanced, that the body has become intimately mixed with the earth, it will be prudent in the medical examiner not to sanction too readily the charge of poisoning.

As to the cause of the presence of arsenic in these situations, it may be that the earth is naturally arsenical, or it may have been mixed with it in the sowing of grain, and which is a common practice in France. The combination found was probably an arsenite of lime.—*Bulletin de l'Academie Royale de Médecine.*

T. R. B.

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77. *Aconitum Napellus*, (*Monkshood.*)—Case by A. Ramsay.

At about 11 A. M., a boy aged fourteen, on passing a garden, looked over the wall, and asked a young man in the garden if he would give him some parsley; to which it was answered that he would get some new parsley, as being much

better than the old kind. The young man accordingly gave the boy a handful of green leaves, of which he ate some. In about two hours after he complained of a burning sensation in the mouth, throat and stomach, and was very sick For this his mother made him take a glass of whisky. Some time after this he took a fit and fell on the ground; at 6 P.M., on his mother returning from her work, she found him lying across the bed, with his hands in his pockets, dead and stiffening. The blood-vessels within the head were found enormously distended with dark-coloured fluid blood, upwards of a pound of which escaped from the skull and spinal canal. The stomach was empty, with a deep inflammatory blush over its whole internal surface, and here and there patches of a darker colour. Farther dissection was not allowed.—*Medico-Chirurgical Review*, July, 1844, from *Northern Journal of Medicine.* T. R. B.

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78. *Poisoning by Euphorbia Lathyris.*—By M. JACOB. An individual was suddenly seized with violent vomiting and bloody stools. He had no medical attendance during the first two days, and the physician called in had no suspicion of poisoning. The patient died at the end of three days. The stomach and intestines presented no decisive appearances, and Drs. Jacob and Lémoine, who had been appointed by the authorities to make the necessary inquiry, proceeded to an analysis of the solid parts. A portion of the liver, a kidney, and half of the stomach, and large intestines were submitted to a prolonged decoction in a close vessel. The liquor arising, when freed from fat by cooling and decantation, was of a deep yellow, opalescent, and powerfully reddened litmus. It was concentrated at a gentle heat, divided into several portions, and tested for the principal mineral poisons. Sulphuretted hydrogen gave slowly a very scanty yellow precipitate—not sensibly soluble in water; lime water a white precipitate; nitrate of silver a very abundant yellow one, partially soluble in ammonia; and ammoniacal sulphate of copper a green coloration of the liquor in a quarter of an hour, and subsequently a precipitate of the same colour. As all these precipitates had the colour of those produced by arsenic with the same reagents, they next proceeded to determine their nature, and the result of numerous experiments showed the presence of sulphur, and a small quantity of animal matter, *without the slightest trace of arsenic.* It further demonstrated (says Dr. Jacob,) that the yellow precipitate furnished by nitrate of silver was produced by a mixture of chloride of silver and phosphate of the same base, whence its incomplete solubility in ammonia; also, that the green coloration and precipitate by the copper must be attributed, the former to the mixture of the reagent with the yellow liquor, the latter to a small quantity of animal matter coloured by the liquid.

The physicians next tested the liquid for the principal vegetable poisons, viz., strychnine, brucine, morphine, and prussic acid, but could discover no indications of any of these.

The prosecution was thus necessarily abandoned, but the scandalous conduct of the accused, the widow, again excited public attention, and caused renewed investigations. And from these it appears almost certain that the deceased was poisoned by the *Euphorbia Lathyris.* She bruised the seed, and administered it in wine to her husband, and he, although drunk, refused for a time to drink it, saying that it burnt his body.—*Chemist*, from *Journal de Chimie Médicale.*

T. R. B.

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79. *Rupture of the Omentum.*—A hussar felt, as he said, "a crack in the breast," as his horse came to the ground, after taking a leap. Next day he complained of pain under the short ribs of the left side—he had cough, with bloody expectoration, and swelling, as well as pain of the left hypochondrium. The bowels were obstinately confined, the urine scanty and high-coloured; the pulse very small and rapid. Things went on from bad to worse, and the patient died early next morning. On examining the body, a rent in the omentum, to the left side, and one inch and a half long, together with five ounces of bloody effusion

within the cavity of the abdomen, were discovered. The lungs appeared quite healthy.—*Dr. Derner* in *Casper's Wochenschrift*, *London Medical Gazette.*

T. R. B.

80. *Lisfranc's opinion on some Disputed Points in Obstetrical Medical Jurisprudence.*

Moles.—M. Lisfranc has no doubt, if the embryo dies, it may become extremely atrophied or even disappear entirely, while the placenta, which still retains its connection with the uterus, may increase and become altered in its structure. He believes that moles are sometimes thus formed as he has dissected several wombs which contained placenta in which not a vestige of an embryo could be discovered. But he is also of opinion that moles may be formed independently of conception or sexual connection, and he then attributes their origin to coagula of blood which have become organized. Thus he has seen females long affected with menorrhagia, during which they abstained from sexual intercourse, subsequently void moles, and, on dissecting a young girl who died from the consequences of imperforate vagina, he discovered a mole in the uterus.

M. Lisfranc discusses the circumstances that have been supposed to distinguish moles from pregnancy, and comes to the conclusion that the diagnosis of the former affection is difficult, or, more properly speaking, impossible; the utmost that can be done is to calculate probabilities after having carefully weighed all the symptoms.

When the mole is expelled, the lochia flow and the breasts swell, and are supplied with milk usually just as after labour.

Physometra, or Tympanitis of the Womb, arising either from the entrance of atmospheric air, or dilatation of the uterus by elastic fluids, (sulphuretted hydrogen, it is supposed,) generated during the decomposition of organic matter, such as a fœtus or placenta, or finally, from an excretion of gas from the internal surface of the uterus. From whatever cause it may originate, M. Lisfranc is a believer in the occasional occurrence of this disease.

Hydrometra, or Dropsy of Uterus.—Naegele and Stolz deny the possibility of the occurrence of this disease, except in connection with pregnancy, because the uterus is a mucous and not a serous membrane—because its dense structure would present an insurmountable obstacle to its dilatation by the fluid—because the fluid would escape, and because, as they allege, no authentic case of the disease has yet been recorded.

M. Lisfranc details two cases of hydrometra, in both of which the absence of pregnancy was satisfactorily ascertained.

Hydatids of the Uterus and Vagina.—The great majority of writers maintain that hydatids of the uterus must be the result of conception. M. Lisfranc admits that the clustered hydatids, somewhat resembling a bunch of grapes, has always this origin, but that true hydatids may exist in the virgin uterus, and refers to a case recorded by Percy as indisputably proving this fact.—*British & Foreign Med. Review*, July, 1844.

T. R. B.

81. *Hereditary Insanity, how far, in cases of alleged unsoundness of mind, it may be pleaded.*—Sir Thomas Apreece died on the 30th of December, 1842. Certain papers were propounded as containing his last will and testament. Probate of these papers was opposed by Mrs. Peacocke, the sister and sole next of kin, on the ground that the deceased was not, at the time of executing these papers, of sound mind. In the allegation it was pleaded, that the said Sir Thomas Apreece left him surviving,—Thomas Apreece and William Apreece, natural sons of the late Charles Apreece, (who was the paternal uncle of the testator,) both of whom were under confinement as lunatics, as was also the late John Apreece, another paternal uncle of the testator, and who died under such confinement.

The admission of this article was opposed by counsel, on the ground that hereditary or constitutional insanity cannot be adduced as evidence of indi-

vidual or particular insanity; that its admission would lead to the extension of proof through a great number of collateral relations, and thus many causes would be tried instead of one.

It was defended on the general ground that an inquiry is allowable, as to whether the family of the deceased was subject to mental insanity.

Sir Herbert Jenner Fust, the judge before whom the case was argued, observed, that "if the present plea be admitted, there must be an opportunity afforded to counter-plead; evidence may be gone into, on the one hand, to show that there is insanity on the father's side and none on the mother's; on the other, that the insanity is inherited solely from the mother and the case may branch out into various collateral matters and issues. In *Tyrell* v. *Jenner*, the party whose insanity was pleaded, was a sister of the whole blood, immediately and inseparably connected with the testator; here, to put the case at the highest, the parties are only collateral kinsmen. Where is the court to stop? What is the degree of relationship to which this hereditary malady is to be limited in pleading, if the court once extends the principle to collateral relations? If in this case, it had simply been pleaded that a brother of the deceased had been insane, so far the case of Tyrell *v.* Jenner and the present case would have been identical, except, indeed, that the former case extended the principle to the son of the party. Here, it is sought to enlarge the principle to the natural children of the uncle of the deceased. I think, in this respect, the two cases materially differ, and I will not carry the principle established by that one case farther than the case itself warrants."

This article must be struck out of the allegation, *Curteis' Ecclesiastical Reports*, vol. 3. *Frere* v. *Peacocke*.

The above is doubtless good law, but—what is sauce for the goose should be sauce for the gander; and if so, the principle is justly applicable in *criminal* as well as in *civil* cases. T. R. B.

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82. *Relative Weight and Size of the Male and Female at Birth.* By Dr. Simpson, Professor of Midwifery, Edinburgh.—Dr. Clarke (Philosophical Transactions, 1786) gave the absolute and relative weight of 60 of each sex, taken at the Dublin Hospital:*

60 Males weighed 442 lbs.; average 7 lbs. 5 oz. 2 dr.
60 Females weighed 404¼ lbs.; average 6 lbs. 11 oz. 2 dr.
Average difference, 9 ounces.

In the Edinburgh Lying-in Hospital, 50 male and 50 female children, born during the latter months of 1842 and the ealier part of 1843, were weighed by my friend and assistant, Dr. Johnstone:

50 Males weighed 383 lbs. 11 oz. 4 dr.; average 7 lbs. 9 oz. 1 dr.
50 Females weighed 342 lbs. 12 oz. 4 dr.; average 6 lbs. 12 oz.
Average difference, about 10 ounces.

Lengths of the above—

50 Males, total length 1020½ inches; average 20 inches 5 lines.
50 Females, total length 990½ inches; average 19 inches 10 lines.
Average difference, 7 lines, or upwards of half an inch.

—*Edin. Med. and Surg. Journ.*, Oct., 1844. T. R. B.

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83. *Copper Tanks at St. Helena.*—Some letters lately appeared in the *Times*, stating that the water supplied to the India ships touching at St. Helena, contracted poisonous qualities, by being kept for a long time in tanks of copper. Some of the passengers and crew of the "Moffatt," from Bombay, having been seized with severe symptoms and of a suspicious character, the symptoms were attributed to the water being poisoned as above. This induced Messrs.

* **The Troy or Apothecaries' weight was there used.**

Mason and Dawson, the physicians professionally attending one of the parties, to institute an inquiry into the matter; for which purpose, Dr. Venables was requested to undertake and assist in the investigation. The report is so far satisfactory, inasmuch as it negatives the presence of copper in any form, the analysis showing that the water did not afford even a trace. A specimen, taken from an *iron tank*, in which it was kept on board the vessel, held a large proportion of *peroxide* or *rust* of iron in mechanical diffusion. The peroxide, it is observed, was evidently derived from the rusting of the tank, and diffused through the water, when agitated or disturbed; otherwise, it was found tolerably pure and wholesome, free from any bad taste or smell, slightly acidulated with carbonic acid, and probably holding a trace of iron in solution.

Some very useful observations upon the danger of using water kept in copper vessels follow. It is stated, that copper is not readily attacked by pure water, but, under the joint influence of air and moisture, it is corroded. By agitation, this crust becomes detached and is diffused through the water. A fresh portion undergoes the same process, and, by a succession of corrosions, the water has become strongly impregnated with a poisonous form of copper, which, by the agitation of the water in the tanks, communicated by the motions of the ship, will be mechanically diffused, and persons drinking it almost to a certainty be poisoned. During cooking, too, the insoluble oxide may be rendered soluble, and thus converted into a still more active and speedy poison. Hence the propriety of doing away with copper tanks, if in use, and their replacement by others of a less deleterious nature, are strongly urged.—*London Atlas*, Oct. 26, 1844. T. R. B.

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84. *Trial for Murder.*—William Crouch was a groom, 28 years of age. No details of his life or character are known prior to 1838. In December of that year, he was thrown against a wall and received a concussion of the brain. He was taken into the Devon and Exeter Hospital in a state of insensibility and according to the evidence of Mr. Tuffnell, under whose care he was for about a month, remained so for some time. He was treated for this disease and repeatedly bled. Mr. Tuffnell states, that on his recovery he advised his master not to take him back again, as he considered that from the injury he had received, the slightest drink might so affect his brain, as to render him incapable of taking care of a pair of horses.

Several witnesses deposed as to his condition after the above occurrence. He was frequently dull and absent, having formerly been of a cheerful turn of mind. He avoided society—and was known to sit for hours without speaking. In August, 1839, he became a servant to Lord Falmouth, and was discharged in January, 1840. A witness states, that he never heard him converse with a single servant during that period. He was asleep half his time, and was called the half-cracked man. In January, 1844, the prisoner came as waiter and post-boy at the Crown and Thistle tavern, in London. The landlord deposes, that he was incapable of performing these duties, and that he could never make him understand any thing. Crouch was always drowsy and heavy, and at last it was necessary to discharge him. He was willing to do his work, but was unable. On the day of the death of his wife, he was at the tavern and took something to drink, (a pint of porter.) He seemed somewhat wild when he came in; he became a little calmer, and then again excited. He left about half-past three o'clock.

Such are all the facts known concerning his previous life—no insane delusions, but dull, stupid, heavy.

The prisoner and his wife had come to their last residence in September, 1843. They had been separated from each other for about a fortnight, but she used to come and see him. They had one child, about nine months old, of which the prisoner appeared very fond.

On the afternoon (March 30, 1844) when he committed the murder, his landlady states that he was seen by her for a few minutes, when he left and returned in about an hour, when he had the appearance of a drunken man.

She told him that he had been drinking, which he denied. He sat down on a chair and said, "it must be done." She asked what must be done. He repeated the words three or four times and then fell asleep. At the end of half an hour she awoke him, and told him that his clean clothes had been brought home. He replied, that he should never want them. After some other observations, as to the neglect of his wife, he again left. At about twenty minutes before seven, he returned to his room, asked a person on the stairs whether his wife was there, and almost immediately thereafter she heard a little girl, who was in the room, screech. On entering, the deceased was seen lying in a reclining position by the side of the wainscoting, with her throat cut and dying. He was standing against the chest of drawers and wiping a razor. On expostulating with him, he said, "I have done it and I could not help it." To the constable who arrested him, he said, "it serves her right, she should not have left me."

He was thus evidently jealous—and appears also to have been irritated at her not mending his things. He had threatened, some time previous to the murder, to beat her or cut her throat.

He made a feeble attempt to cut his own throat immediately after the murder.

The day after the murder, he was crying very much and wished he was dead. He asked also to see his child.

An attempt was made to release the prisoner from his sentence, on the ground of being a monomaniac, but without success.—*Lancet*, June 8, 1844.

T. R. B.

85. *Case of Suicide.*—On Saturday, a chaise-boy, at Covincester, in the employ of Mr. Stevens, of the Ram Hotel, went into a stable, belonging to his master, and cut his throat with a razor. He cut the windpipe quite through, and *walked to his home, at least three hundred yards.* One of the neighbours met him in the yard, and asked what was the matter with him. He said he had cut his throat with a razor, and she then took and seated him in a chair, and, at his request, fetched him some water, which he drank, some of it running out of the wound. He died within five minutes after the time that he had first entered her house.—*London Illustrated News*, August 24, 1844. T. R. B.

86. *Recent English Law Cases. The Queen* v. *Sophia Wilshaw.*—The prisoner was indicted for stealing money, the property of Joseph Wood, her master. A surgeon deposed as follows; "I am a surgeon; I know Mr. Joseph Wood; he is 85; he is quite infirm and bedridden; he can sit on the side of his bed when he is lifted out; he is not able to bear a journey to the assizes, and I think it is not likely that he ever will be so." The counsel for the prosecution proposed on this, to give in evidence the deposition of the prosecutor, taken before the committing magistrate, in the presence of the prisoner; and this was allowed by the court. The prisoner was acquitted on the merits.—1 *Carrington and Marshman's Nisi Prius Reports*, 145.

The Queen v. *Marshall.*—Indictment for night poaching. One of the witnesses had made a deposition in the presence of the defendant, but was now ill. Dr. Knight was called. He said, "I am a physician; William Rickards has been under my care; he has been suffering from delirium and depression of spirits, in consequence of a blow on the head; his intellects are affected by the injury. I think he will recover, but I cannot say how long it may be before he will be well.

Sergeant Ludlow, who tried the cause, (having conferred with Justice Coltman,) said: "Mr. Justice Coltman is of opinion, that if the witness is actually insane, his deposition is not receivable in evidence, although the insanity of the witness may be only temporary." Dr. Knight, in answer to a question of the learned sergeant, said, "I cannot say that Rickards is now in a state of insanity."

Ludlow: The deposition cannot be received in evidence.—*Ibid. p.* 147.

T. R. B.

MISCELLANEOUS.

87. *Obituary.*—Died, suddenly, at Edinburgh, Nov. 14th, Dr. John Abercrombie.

Dr. A. was the son of the late Rev. Mr. Abercrombie, one of the ministers of Aberdeen. He took his degree at Edinburgh on the 4th of June, 1803, writing for his Thesis, "*De fatuitate Alpina.*" After studying in London for six months, he became a fellow of the Royal College of Surgeons, Edinburgh, and settled in that city. At this period Drs. Gregory and Monro Saunders were in full practice as consulting physicians. Dr. Abercrombie commenced as a general practitioner, but from the first he succeeded in gaining, to a remarkable extent, the confidence of the public. His success is said to have been owing to the assiduous attention he paid his patients. This he carried to an extent previously unknown, frequently visiting them three or four times a day. His unusual success created many rivals and enemies: these he disarmed, and even, ultimately, converted into friends, by the inoffensiveness of his conduct, and frequently by practising the Christian doctrine he professed, of returning good for evil. In 1808, he married a lady of considerable fortune, which enabled him to keep his carriage. In 1806 he made his first communication to our respected cotemporary, *The Edinburgh Medical and Surgical Journal*, entitled, "A Case of Cynanche Laryngea." It is inserted in the 12th volume of that periodical. In the pages of its subsequent numbers he became a frequent contributor, and they will be found to contain most of the cases and observations which he afterwards embodied in his well-known works on the Pathology of the Brain and Abdominal Organs.

On the death of Dr. Gregory, in 1821, he became a candidate for the chair of physic, held by that distinguished physician. Dr. James Home, however, at that time very popular as a professor of materia medica, was translated to the chair of physic, and was succeeded by the late Dr. Duncan. Dr. Abercrombie now joined the Royal College of Physicians, and gradually became the first consulting physician in the Scottish metropolis. In this capacity he acquired an extent of practice and public confidence which distanced all competitors.

Notwithstanding the harassing nature of his avocations, the contributions of Dr. Abercrombie to medical literature were numerous and important. In 1820, appeared his *Researches on the Pathology of the Intestinal Canal.* In 1828 was published his celebrated work, entitled, *On Diseases of the Brain and Spinal Cord.* It has been translated into most of the European languages, and has gone through three English editions. This was followed by an enlargement of his work *On the Intestinal Canal*, called *On Diseases of the Abdominal Viscera*, of which a second edition was required in 1830. In this year, also, he gave the public a book *On the Intellectual Powers and the Investigation of Truth*, of which popular work several editions have been published. This was followed, in 1832, by *Suggestions on the Malignant Cholera*, and in 1833, by *The Philosophy of the Moral Feelings.*

In 1835, Dr. Abercrombie was elected Lord Rector of Marêchal College and University, Aberdeen, and published his Inaugural Address, which afterwards appeared in an enlarged form, under the title of "Culture and Discipline of the Mind." In 1834, the University of Oxford conferred upon him the degree of M. D., and he was elected one of the vice-presidents of the Royal Society of Edinburgh.

In 1841, Dr. Abercrombie had an attack of paralysis, from which, however, he soon recovered, and resumed the active duties of his profession. His health remained good up to the moment of his decease. On Thursday, November 14, 1844, after eating a hearty breakfast, he was preparing to go out, as usual. The carriage was at the door, but as he remained longer than usual, a servant entered his private room, and found him lying on his face, dead.

On the following Saturday, a *post-mortem* examination revealed the following facts:—The brain was very large, weighing forty-six ounces, but healthy in structure throughout. The pericardium was distended with blood, which had been poured out from a laceration in one of the branches of the coronary artery, about four lines in length.

In reviewing the reputation of Dr. Abercrombie as an author, we cannot but feel surprised that he should have attained so eminent a scientific position, independent of those means which with other men are necessary to its acquirement. He was never physician to any public hospital or dispensary, and all the facts with which his works are enriched were derived from private practice. Yet his treatises on the Brain and Abdominal Organs embody a mass of the most interesting cases and observations, and constitute most important contributions to the subjects of which they treat. Moreover, they tended to maintain and extend the scientific claims of British physicians, and this notwithstanding the *éclat* deservedly enjoyed by the pathologists of France. His philosophical work *On the Intellectual Powers*, &c., may still be considered the most interesting and lucid introduction to a study of the mental faculties, although it emanates from the same school which boasts of Dugald Stewart, of Reid and of Brown. In his latter years, Dr. Abercrombie, by his writings, extended, in no small degree, a knowledge of the principles of revealed religion. The short essays he published on sacred truths have been most extensively read, from twenty to thirty thousand copies of each having been sold in a few years.

The private life and conduct of Dr. Abercrombie were not only irreproachable, but distinguished by the utmost philanthropy and good will towards all men. In him all the public charities of Edinburgh have lost a supporter, and many are the instances which might be related of the assistance he has rendered his professional brethren when in distress. Amongst others may be mentioned the case of a general practitioner, who, from a train of adverse circumstances, being declared bankrupt, received from Dr. Abercrombie the sum of one hundred guineas, on the day his effects were sold.

The confidence he enjoyed amongst the profession was deservedly great. He never attempted to supplant a brother practitioner, or ingratiate himself with the public by means unworthy the dignity of the physician. His manner toward a patient, indeed, was characterized by great taciturnity, although never by rudeness. All his appointments were kept with scrupulous exactitude, and to this, as well as the gentlemanly conduct he pursued in his consultations with the profession, must be attributed much of the extensive confidence they placed in him up to the moment of his death.—*Lancet*, Nov. 23d, 1844.

AMERICAN INTELLIGENCE.

ORIGINAL COMMUNICATIONS.

On the Preservation of the Human Body for Anatomical Purposes. By W. E. Horner, M. D., Professor of Anatomy in the University of Pennsylvania.

Various plans and substances have been proposed for this very desirable object, but there are none, as yet made known, which meet every requisite. Antiseptic articles are sufficiently abundant, it is true, and will be found in many of the metallic and alkaline preparations. The most prominent among the former are white oxide of arsenic and muriate of mercury, and among the latter are muriate of soda, nitrate of potash, muriate of ammonia, the aluminous salts and some others. There are very few neutral salts indeed which do not possess, to a limited extent, this property. Alcohol and its several preparations are, in many respects, unexceptionable. We then have the various vegetable and mineral acids: creosote, the essential oils, especially that of the pinus sylvestris, elain and stearin, &c. &c. The catalogue is, indeed, very numerous, of articles having a power to resist the decomposition, by putrefaction, of animal matter. A substance, however, to be unexceptionable, mus. possess an absolute antiseptic property—it must not vitiate the colour of parts, neither must it affect their texture so as to alter materially or objectionably their consistence; and, last of all, it should resist the process of drying, so that parts will remain flexible and of full volume as in life. It is dfficult to say, whether any anatomist has succeeded in his art to the degree of perfection thus claimed. If the accounts of Ruysch and his preparations be not exaggerated, he would seem to have accomplished all of these points, but by what process is now entombed with him.

Having tried, to some extent, nearly all the principal articles in the foregoing category, my preferences have settled down decidedly in favour of two or three of them, to wit, the muriate of soda, nitrate of potash and alcohol. The two former for the preservation of bulky articles, by injection and by external application,—the latter by steeping.

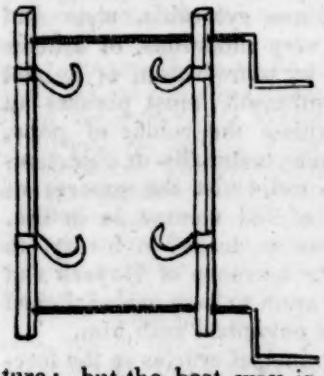
The formula which I have now used for twenty-three years, with some slight changes, as experience directed, is as follows:—

℞.—Liverpool, St. Ubes, or Turks' Island Salt,	℥xxxvi.,	avoirdupois.
Nitrate of Potash,	℥xix.,	"
Carbonate of Soda,	℥viii.,	"
Molasses, (sugar-house,)	℥iv.,	by measure.
Starch,	℥ij.	
Water,	Ovi.	Mix.

In the preparation of the above, which is sufficient for one subject, the saline constituents are to be thoroughly dissolved first of all in boiling hot water. The molasses is afterwards stirred well in. The starch should then be mixed up with cold water, Oss., and the lumps fully reduced; in that state it is stirred gradually in with the other articles, and, as soon as they begin to boil again, the whole mass swells up, and in that state should be immediately removed from the fire. On the proper

reduction of its temperature, it is then fit for use. I generally make several gallons of this mixture at once, to have it at hand, but its quality is somewhat impaired by keeping. The molasses develops a fine aroma at the boiling temperature of this solution, and the starch imparts a proper consistence. The soda prevents instruments from being readily acted on by the compound. Any one or more of the above ingredients may be increased or diminished from their relative quantity to meet especial intentions. Some regard must be had, however, to the muriate of soda and the nitrate of potash, as any great excess above the quantities stated, in going too far beyond the point of saturation, will make a simple mixture clogged by the uncomminuted and undissolved particles. If the desire be to colour up the muscles more highly, the molasses may be used more freely; if the appearance of the nerves and the white tissues are to be preserved, the quantity may be decreased to a minimum. The soda may be left out entirely, but, when in, it has the property of preventing the main ingredients from hardening too much the tissues injected. If the subject to be injected is loose and somewhat œdematous, the mixture should be made thicker with starch, the object of the latter being to regulate percolation.

The best way of introducing the above mixture is as follows: The



sternum should be divided in its middle longitudinally, and to get at the heart the sternum dilator, the instrument, represented in the adjoining figure, to which I called the attention of the profession some years ago, in vol. iii. p. 242, Am. Journ. Med. Sci., Nov., 1828, should be used. The two divisions of the instrument, acting each upon its side respectively of the sternum, the latter parts open four or five inches. The pericardium is then slit up, and a large pipe introduced into the root of the aorta. A syringe will do for throwing in the mixture; but the best way is by a column, of twelve or eighteen feet in height, to which for convenience is attached a flexible tube of leather of four feet in length, to conduct the injection to the aorta pipe, and furnished with a stop cock at the lower end. By this apparatus, the pressure can be exactly regulated, so as to keep the vessels full without rupturing them, and the injection pushed uniformly on. In all cases where it succeeds well, it returns by the veins, and keeps them beautifully distended as in exercise. It should be thrown in warm.

Injection through one of the collateral arterial trunks is not so effectual as from the aorta itself. I have, for the purpose of saving the sternum, tried the brachial, the femoral, the carotid and some other arteries, but always with some measure of disappointment.

If the subject is to be used immediately, the above quantity will keep it in good preservation for two months in winter; if it is to be kept during the summer and for an indefinite length of time, twice the quantity should be injected, or even more if the subject be very large. The objection to using the latter quantity where a subject is to be dissected at once, is, that it inundates rather too much, but where time is left for evaporation, the latter process corrects the over-humidity.

If a subject is to be kept during the whole summer, it should be preserved besides in a mixture of one part of common salt to four of mahogany or pine sawdust; and, to prevent its becoming too dry, it should be sealed up in lead, or surrounded by a cloth which is impenetrable to moisture, or by some other of the numerous means of insulation from the atmosphere, as a box covered well with pitch, or an old oil barrel or hogshead. A subject may be kept in this way, fit for most anatomical purposes, for an indefinite length of time. If the investment used fail in preventing evaporation and the limbs get hard, they may be easily soaked out to a proper suppleness. Insects have no disposition to molest such pieces in their dried state.

The above injection impairs the great nervous centres, as the brain and spinal marrow; also the mucous membranes and the rete mucosum, by softening them and making them puffy; a proof by the way of the quantity of neurine and nervous fatty matter entering into the composition of the rete mucosum. This influence is derived from the free alkaline matter in the injection, coalescing with the neurine, and making a half diffluent soap. Hence the cuticle always parts in ten or twelve days. Leaving the alkali out will correct this, but with another disadvantage in its place, to wit, the too great hardening of the tissues. The accident is, at best, but unimportant, as a roller imbued with tallow or wax, laid down in place of the cuticle, will resist the drying of the skin at the part.

The muscles are beautified to a remarkable degree by the injection above, and are also preserved in a firm state of strength and tonicity. I resort to it invariably in my demonstrations of the muscles, and have done so for three-and-twenty years, and should consider my arrangements incomplete without it. Whether my partiality is justified, must however, depend upon the evidence of some thousands of young men, who have been trained in their anatomy by me.

Anatomical pieces preserved this way, do not make good spirits of wine preparations for suspension; the salts and the molasses are constantly tinging that fluid. If the pieces are to be shown by direct handling, the turbidness of the fluid is inconsequential, and the muscular fibre, though its colour is changed by the spirits of wine into a dark olive, yet has its character very strongly developed in parts where it may previously have been equivocal. The fibre is also rendered somewhat more brittle, and the cellular substance more distinct by it. A muscle thus treated, becomes a fine subject for unravelling and for study. The arteries distended in this way, are for a short time rendered very soft and extensible, and receive a much fuller amount of the common coarse injections. Some delay should be had before the latter, so as to allow the saline injection to pass off, and the aorta should at any rate be emptied of it. The injection has a fine effect in developing the tissue of an artery, especially if the latter be steeped previously in alcohol.

The skeleton, the ligaments and the cartilages, are made extremely firm by the injection above, so that in boiling the gelatin is not formed so readily; and maceration in water seems to produce, even in very hot weather, scarcely any effect in accelerating putrefaction of these parts. Skeletons thus injected, though much more durable and heavy, when prepared by boiling, than others, yet never can be well bleached, but always retain a brown tinge.

Upon a dissected surface a soapy glairy formation will occur after a few

hours exposure to the air: this may be partially corrected by an envelop saturated with tallow.

Some other considerations might be added, but this communication is perhaps already too long, and I will therefore say, after some experience, that I know no other preparation, which has attracted public attention and commendation, whose properties are in the aggregate equal to the above. It has moreover the advantage, that the formula is almost a domestic one for the preservation of meat, and is under a somewhat modified application, one of the most useful and indispensable in the nautical and household economy of nations.

As to the vaunted preparations of arsenic, they are certainly antiseptic, but poison the dissector's fingers, and add nothing to the qualities of the parts for dissection, indeed rather impair them. Mr. Ganale's preparation of alum is also antiseptic, like all the other forms of this earth, but spoils completely the colour of the muscles, and also hardens them and other parts too much. It has in this respect a similar effect to corrosive sublimate, which of all articles is the most potent, both for preventing and for arresting putrefaction, but like arsenic exposes the health of the operator, and also, by its ready action upon the albuminous constituent of our tissues, confounds them all into a hard, drab-coloured undistinguishable texture.

I will make a few remarks on alcohol, or spirits of wine, from my own observation. There is no other fluid which I think equal to it for wet preparations; and those who claim for the dilute acids, and the solutions of neutral salts an equal value, have overlooked too much the constant precipitating of their solid constituents, so as to obscure the preparation and make the fluid finally turbid; at least I have tried none against which this objection did not hold. When alcohol is used, the blood should be removed from the specimen by soaking it for a time in fresh clear water, frequently changed; then at least three times its weight of alcohol should be used, and the specimen so arranged that the alcohol shall be in contact with its whole surface: massive pieces should be cut into, to give to the spirits a proper access. When the preservation of the white tissues is concerned, the alcohol is most exactly suited to them. My most usual strength of it is about 26° of the glass float of Cartier, or 60° of the centesimal float of Gay Lussac. A bulky anatomical specimen, from the quantity of water it discharges, will dilute the spirits of wine probably six or eight degrees, but at least several, and a great state of dilution always incites to softening and maceration, so as to spoil the piece.

A good spirits of wine preparation, properly made, and suspended, is constantly improving in the perfection of its appearance, and is decidedly better at the end of twenty years, than at the beginning of them, so far as the condition and appearance of the tissues are concerned. Alcohol can generally be got of the strength named, at seventy cents a gallon; it is therefore not very expensive in this country, to keep up anatomical cabinets of wet preparations. In Europe, the excise duties impose a much higher price, and the anatomists are therefore, constantly attempting to adopt a cheaper substitute.

It is difficult to get glass or stone vessels of sufficient size for large anatomical pieces to be kept in spirits of wine. Vats of lead are used to some extent, but a carbonate of lead is formed in large quantity, which, being precipitated on the specimen, spoils its surface, and makes it ragged and opake. I have tried zinc partially, and find it to answer better, but time is wanted to mature the observation.

Proceedings of the Association of Medical Superintendents of American Institutions for the Insane.

At a meeting of a number of the Medical Superintendents and Physicians of Hospitals and Asylums for the Insane in the United States, convened at Jones' Hotel, in the city of Philadelphia, on the 16th of October, 1844, SAMUEL B. WOODWARD, M.D., of the Massachusetts State Lunatic Hospital, was appointed *President;* SAMUEL WHITE, M. D., of the Hudson Lunatic Hospital, *Vice-President;* and THOMAS S. KIRKBRIDE, M. D., of the Pennsylvania Hospital for the Insane, *Secretary* and *Treasurer.*

On motion, a committee was appointed, to designate the names and stations of those gentlemen who were present and entitled to seats as members of the convention, who reported the following, viz.:

Dr. *Samuel B. Woodward*, of the Massachusetts State Lunatic Hospital at Worcester.

Dr. *Isaac Ray*, of the Maine Insane Hospital at Augusta.

Dr. *Luther V. Bell*, of the McLean Asylum for the Insane at Somerville, Mass.

Dr. *C. H. Stedman*, of the Boston Lunatic Hospital.

Dr. *N. Cutter*, of the Pepperell Private Asylum, Mass.

Dr. *John S. Butler*, of the Connecticut Retreat at Hartford.

Dr. *Amariah Brigham*, of the New York State Lunatic Asylum at Utica.

Dr. *Samuel White*, of the Hudson Lunatic Asylum, at Hudson, N. Y.

Dr. *Pliny Earle*, of the Bloomingdale Asylum, N. Y.

Dr. *Thomas S. Kirkbride*, of the Pennsylvania Hospital for the Insane at Philadelphia.

Dr. *William M. Awl*, of the Ohio Lunatic Asylum at Columbus.

Dr. *Francis T. Stribling*, of the Western Asylum of Virginia at Staunton.

And Dr. *John M. Galt*, of the Eastern Asylum of Virginia, at Williamsburgh.

On motion, a committe was appointed to prepare business for the action of the convention, who proposed the reference of a number of important subjects to appropriate committees, to report at a future meeting; which suggestion was adopted by the convention, and the following committees appointed, viz.:

1. On the Moral Treatment of Insanity, Drs. Brigham, Cutter, Stribling.
2. On the Medical Treatment of Insanity, Woodward, Awl, Bell.
3. On Restraint and Restraining Apparatus, Bell, Ray, Stedman.
4. On the Construction of Hospitals for the Insane, Awl, White, Bell, Butler, Galt, Ray.
5. On the Jurisprudence of Insanity, Ray, Stribling, Stedman.
6. On the Prevention of Suicide, Butler, Kirkbride, Earle.
7. On the Organization of Hospitals for the Insane, and on a Manual for attendants, Kirkbride, Brigham, Galt.
8. On the Statistics of Insanity, Earle, Ray, Awl.
9. On the Support of the Pauper Insane, Stribling, Bell, Ray.
10. On Asylums for Idiots and the Demented, Brigham, Awl, White.

11. On Chapels and Chaplains in Insane Hospitals, Butler, White, Stedman.

12. On Post-mortem Examinations, Kirkbride, Stedman, Galt.

13. On the Comparative Advantages of Treatment in Hospitals and in Private Practice, White, Ray, Butler.

14. On Asylums for Coloured Persons, Galt, Awl, Stribling.

15. On the Proper Provision for Insane Prisoners, Brigham, Awl, Bell.

16. On the Causes and Prevention of Insanity, Stribling, Kirkbride, Brigham.

The various subjects referred to the different committees were freely discussed by the members of the convention, and partial reports received from several, which were accepted, and all the committees were continued, to report in full at the next meeting.

The Committee on Statistics recommended that, in future, the following subjects should be made matter of record in the different institutions, viz.: The monthly number of admissions, discharges and deaths of each sex, with the mental condition in regard to recovery of those discharged, the civil condition of the patients, and their ages at the time of the first attack of insanity, as well as that of admission. And while not feeling prepared to urge, at this time, the adoption of any other subjects for uniformity of report, they would cordially encourage the investigation of any other topic that may be suggested to individual minds, as of utility to the general cause in which we are engaged.

On motion,

Resolved, That the Medical Superintendents of all Insane Hospitals in the United States be requested to have their annual reports published in octavo form, and of the size generally adopted.

Resolved, That the title of this body shall in future be "The Association of Medical Superintendents of American Institutions for the Insane."

Resolved, That the Medical Superintendents of the various incorporated and other legally constituted institutions for the Insane, now existing in the United States, or which may be commenced prior to the next meeting, be, and they hereby are, elected members of this Association.

Resolved, That any member or members of this Association who may be in Europe at the time of the meeting of the convention of physicians to institutions for the insane in Great Britain, be authorized to represent this body at that meeting, and that the President and Secretary furnish the proper credentials.

Resolved, That the thanks of this Association be presented, through the Secretary, to the "Prison Discipline Society of Philadelphia," and to the medical gentlemen of the same city, for their polite attention to the members of the Association during its present session.

Resolved, That an abstract of the proceedings of the Association be published in the American Journal of Insanity, and in the American Journal of the Medical Sciences.

The Association continued its session until the evening of the 20th of October, and then adjourned, to meet in the city of Washington on the second Monday of May, 1846.

By order of the Association:

Thomas S. Kirkbride, *Secretary.*

Cases of Congestive Fever. By ALEXANDER H. PERKINS, M. D., of King Wm., Virginia.

Until within the last few years congestive fever has been unknown in Eastern Virginia, or if it occurred at all, it was only in a few sporadic cases, not perhaps recognized by physicians. Of late it has become quite common, and proved very fatal. The following cases, selected from many others, are detailed principally to exhibit the efficacy of *Quinine in the Paroxysm.*

CASE I.—Oct. 9. Was called in consultation to see Mrs. L. For several days past she had had regular exacerbations and remissions, with some symptoms of congestion. At 11 o'clock, found her very restless, with great prostration, livid and anxious expression of the face, extremities cold, pulse frequent, feeble, and very irregular, with great thirst. Had complained of nausea and burning in the stomach since the commencement of her attack, which symptoms were now very distressing. She had been treated with purgatives (calomel and colocynth), blisters to extremities and epigastrium. Ordered brandy and water to be given cautiously, and a strong salt water enema, which brought away a dark tar-like matter. The stomach became more composed, pulse fuller, and the extremities warmer, though the burning and thirst still continued; gave ice to allay these last symptoms. This situation continued until evening; the pulse then became worse, and the restlessness much greater. Advised quinine in six gr. doses every two hours, until its peculiar effects were manifested upon the head; a purgative of calomel and colocynth, and enemata to aid its action, until the dark matter ceased to be discharged.

10*th.* Not much improvement; pulse still bad, with restlessness and thirst; head not affected by the quinine, which had by mistake been given in small doses; gave six grains immediately, and ordered it to be repeated every two hours, until the head became affected, and enema twice during the day, or oftener if the passages still continued dark.

11*th.* Found her a little improved; pulse rather better; more composed; slight moisture upon the forehead; the bowels had been moved without the assistance of an enema; the quinine had affected the head. Quinine to be again used after its effects upon the head had in a measure subsided; enemata as before; soup allowed.

12*th.* Much improved; skin disposed to moisture; pulse full and regular; bowels soluble, and the head much affected with quinine. From this time improved; and under the use of twenty-four grains of quinine daily, for several days, she perfectly recovered.

CASE II.—Aug. 22. Col. ——. Had had several fevers with regular exacerbations and remissions, the usual course of our bilious remittent fever; 10 o'clock, A. M., pulse feeble, frequent and irregular; extremities cold; great difficulty of respiration; considerable uneasiness about the epigastrium, and some retching; countenance anxious, and restlessness extreme; ℞—Mustard cataplasms of large size to the epigastric and cardiac regions; calomel and colocynth, and enema of strong salt water, and *quinine* in ten grain doses, every hour and a half.

23*d.* Passed a restless night; pulse not much improved; restlessness still considerable; extremities warmer; distress about the epigastrium very

great; no action from the purgative. ℞—Blister to the epigastrium and cardiac region; croton oil, gtt. ij; calomel grs. 20; *quinine* as before.

24*th*. Some slight improvement in the pulse, veins fuller, blister well drawn, and the gastric distress in a measure relieved; no action of the bowels, and the head not affected with quinine; ℞—Croton oil, gtt. ij; calomel, grs. xxx, divided in two portions, the second to be given four hours after the first, if no action; enemata to assist it; quinine in same doses every two hours.

25*th*. Had passed a restless night, though now more quiet. Has had but one evacuation from the purgatives; pulse not much freer; temperature as the day before; complains of deafness, &c., from the quinine. ℞—Soda powders; enemata during the day; *quinine* to be again used in the same doses every three hours, after the effects somewhat subsided.

26*th*. Much improved; skin warm, soft and moist; bowels had acted freely; distress of the stomach had ceased; head considerably affected with quinine. From this time he continued to improve; quinine continued in smaller doses for several days.

Case III.—Aug. 1. Was called in consultation to C. H. B., labouring under congestive fever, which was the ninth day of his attack, and he said his third *bad ague*. Up to this time he had had regular intermissions; pulse now nearly extinct, skin cold, and bathed in clammy sweat; hands looking shrivelled as if they had been a considerable time immersed in water; countenance anxious, complexion livid; no difficulty of respiration, and no nausea. He had been treated with purgatives; I advised *quinine*. His attendant, with me, was opposed to *large* doses, and we gave it in two grain doses every two hours, with ten drops of laudanum, and some camphor and brandy in the intervals; applied mustard over the stomach and abdomen and to the extremities, and ordered stimulating enemata. No impression was made upon the disease, and he died within twelve hours.

From the above cases, it will be seen that we rely upon *quinine in large doses* in the treatment of congestive fever. The other remedies used, we consider as mere adjuncts. Quinine in small doses we believe is of no avail. The system should be brought under its influence as speedily as possible, and the insensibility to its action is so great, that the system cannot be affected by small doses.

The cases have been detailed to exhibit the efficacy of quinine in the cold stages. In the intermission all admit its utility. We have invariably observed, that when the head becomes affected by quinine, showing that the system is brought under its influence, the disease begins to yield. In Case II. several hundred grains were used before the system was brought under its influence; and it will be observed that, until this occurred, the bowels were exceedingly torpid. Case III. occurred in a man of intemperate habits. This case we are assured could have been saved by the bold administration of quinine.

DOMESTIC SUMMARY.

Mortality among Children in St. Louis. By Dr. Victor J. Fourgeaud, M. D.—The summer and autumn in St. Louis appears to be attended with great prevalence of sickness and mortality among children. The very alarming increase in the deaths, during the months of July and August of the year 1843, induced Dr. Fourgeaud to devote particular attention to the subject, the results of which he has communicated to the public in the pages of the *St. Louis Medical and Surgical Journal*, (No. 12, for March, 1844.) The investigation includes the years 1841, 1842 and 1843.

The population of St. Louis in 1841, was computed at 30,000. The whole number of deaths in that year was 935, of which 488, or more than half, were children under seven years of age. Of the whole amount of mortality, 216 deaths occurred in July, 147 in August, 122 in September, and 121 in October, leaving only 329 deaths distributed through the other eight months of the year. The infantile mortality shows 133 deaths in July, 87 in August, 58 in September, and 47 in October, leaving only 163 deaths for the other eight months of the year 1841.

In 1842 the mortality did not run so high, the whole amount being 658, of which 270 were under the seventh year. But in 1843 a great increase occurred, the whole amount being 1139, of which 645 were children under the seventh year. During the months of July, August, September and October, the total number of deaths amounted to 770, and those under the seventh year to 477, of which 209 took place in the month of August alone.

Taking the three years together, the deaths under the seventh year amount to 1403, whilst those at all other ages amount to 1329; the sum total of mortality, including adults and children, being 3732. Thus, the average mortality of St. Louis, estimated by the three years mentioned, is one death per annum to every thirty-three of the population.

The diseases which proved most fatal to children were cholera infantum, which in the three years carried off 238; convulsions 147; consumption and marasmus 67; measles 59; dysentery 54; croup 50; dentition 48; inflammation of the lungs and appendices 47; inflammation of the brain 40; fevers 63; diarrhœa 39; whooping cough 39; hydrocephalus 30; enteritis 21—297 deaths set down under the head "unknown." Thus it will be perceived that more than one-third of the mortality of children is reported under the heads of cholera infantum and convulsions.

Among the tabular views presented by Dr. Fourgeaud, is one showing the different ages of the children who died of cholera infantum during the three years. From this it appears that out of a total of 238, 149 died before the completion of the first year, 71 between the first and second years, and only 18 between the second and seventh years. The disparity between the male and female deaths is larger than might be expected after allowing for the greater proportion of male births. Thus, 140 are designated as males, whilst the deaths of females only amount to 91.

After indulging in some speculative views in relation to the causes of cholera infantum, Dr. F. states it as his sincere belief, that the unusual mortality from this source in St. Louis, is to be attributed to the want of proper medical attendance. He observes, "I neither desire nor intend to insinuate aught against my fellow practitioners; on the contrary, our city has reason to be proud of her physicians. It is not to them, nor to their malpractice, that this great mortality must be attributed. Mothers! it is because you neglect to seek their aid; it is because you do not employ, or employ them too late, that so many of your offspring are torn from your embraces." To ameliorate the condition of children in St. Louis, especially those of the poor, Dr. Fourgeaud

strongly recommends the establishment of a hospital especially devoted to the treatment of infantile diseases. There, he says, they would be removed from those obscure haunts in which they die from the effects of an impure atmosphere, and the want of the absolute necessaries of life. There, in addition to a purer air, they would have cleanliness, comfortable clothing, and proper medical attendance.

In demonstrating the extent of a great source of suffering and mortality among his fellow citizens, Dr. F. has displayed both intelligence and zeal in the cause of humanity. His recommendation is a good one, and merits the attention not only of the philanthropic citizens of St. Louis, but of other American towns, where cholera infantum swells the bills of mortality. G. E.

Extraordinary Effects of a Stroke of Lightning. By John Le Conte, M. D., of Savannah, Ga.—(*New York Journ. of Med.*, Nov., 1844.)—Five negroes were simultaneously prostrated by a single stroke of lightning on a plantation in Georgia. The sun was shining brilliantly at the time, and a greater portion of the visible hemisphere presented the usual serenity of the summer sky. A singular and rather angry-looking cloud had, for a short time previously, been observed near the verge of the south-eastern horizon, from which occasionally proceeded the low rumblings of very distant thunder. Suddenly the whole atmosphere was illumined by a flash, succeeded by a single report, and the cloud quickly dispersed precipitating a little rain. The five negroes were all taken up in a state of apparent death.

"Case 1.—A negro girl, Adeline, aged about thirteen years, was up in the branches of a small mulberry-tree, twenty feet high, and standing sixteen feet in front of a line of negro houses, which extended parallel to a wood situated one hundred yards in the rear of the same. She was engaged in throwing down the fruit for her little companion below. Every principle of life seems to have been instantly extinguished by the intensity of the electrical shock:—her body had to be taken down from the branches of the tree where it had lodged. No marks of external injury observed.

"Case 2.—Another female child, Kitty, aged about six years, was standing immediately under the tree. She was instantaneously killed. No superficial marks of injury observed.

"Case 3.—Chloe, an adult woman, aged forty years, was walking about ten feet more remote from the base of the tree than the latter child; and, also, *about five feet more distant than the two who survived the shock*, viz.: than cases 4 and 5. She was instantly killed. No marks of injury recognized, excepting a burnt spot, the size of a dollar, under the right axilla. Her clothes were set on fire; but this was probably occasioned by the breaking of a tobacco pipe which she was smoking at the time, and which scattered the ignited contents over her cotton garments. In the three cases above-mentioned, all the ordinary attainable means of resuscitation were tried without success.

"Case 4. Charlotte, an adult woman, aged twenty-nine years, *was standing half-way between cases 2 and 3*, and, consequently, about five feet from the root of the tree. After remaining in a state of insensibility for some time, she gradually recovered her consciousness. A dose of castor-oil was then administered. The skin on her right shoulder was abraded for a space as large as a dollar. Her clothes were rent into shreds; on the right side of her body, the skin was blistered and marked with discoloured streaks, which extended anteriorly on the lower portion of the abdomen towards the pubes. A small streak likewise extended along the interior aspect of the right arm. She complained of pain in the stomach and bowels for *three weeks*. No vomiting or burning in the hands and feet, as was experienced in the next case. She has been married several years, but has never been pregnant. Her *menstruation* was perfectly *regular* prior to the reception of the shock; but has *since that time* been very *irregular;* sometimes having *two periods* per month, and then escaping *two months*. The flow has also been much diminished in *quantity*. Her health has not been very good since she was struck; manifestly resulting from her

menstrual irregularity. A recent copious bleeding has afforded her evident and immediate relief. Her reproductive functions appear to continue dormant.

"Case 5.—Sarah, a woman aged, *at least* seventy years, was standing immediately beside the last. She, likewise, gradually recovered her consciousness. No medicine was administered. Her clothes were rent; and after a few days, marks of discolouration were manifested along the right arm and right side of the trunk. A violent paroxysm of vomiting followed the restoration to a state of sensibility; which continued, with occasional interruptions, for ten or twelve hours. As in the preceding case, she complained very much of pain in the region of the stomach and bowels, for at least two weeks after the accident. A troublesome sensation of *burning* was experienced in the palms of her hands and the soles of her feet; and in the course of two or three weeks a swelling made its appearance under the right foot, which ultimately resulted in the exfoliation of a portion of the thick, indurated epidermis of that part, about one and a half inches in diameter.

"The *catamenial discharge*, which had, in accordance with the ordinary arrangement of nature, ceased for more than twenty years, *was completely and, thus far, permanently re-established!!* At least, a discharge from the genital organs, having all the obvious and sensible physical characters of the *catamenia*, and observing, with vigorous exactitude, its peculiar law of periodicity, has been established, and continues to recur, with the utmost regularity, up to the present time, (Aug., 1844,) after the lapse of more than a year! She has not missed a single menstrual period since she was struck by lightning. To use a liberal paraphrase of her own language, her 'Moons return as regularly as when she was a young woman.' The flow comes on with the usual premonitory symptoms. Her *mammæ* have undergone an obvious *preternatural enlargement*, apparently originating in a sympathetic irritation, emanating from the establishment of the reproductive functions. This woman has had but one child, to which she gave birth, soon after reaching womanhood. The catamenial flux is represented to have been regular up to the period of its natural cessation, between forty-five and fifty years of age; subsequent to which epoch, she has presented all the appearances ordinarily attending the gradual approach of the state of senility in a vigorous constitution. The electrical shock, likewise, completely relieved her of a troublesome *strangury* which had harassed her for four or five years. Very recently she has, occasionally, had a slight recurrence of the same complaint, although under a much milder form. Otherwise, her health continues perfectly good; there being, so far as symptoms show, not the slightest indication of the supervention of organic disease of the uterus."

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Removal of a Diseased Ovarium. By J. D. Bowles, M. D., of Harrison, Ohio.—(*Western Lancet*, Oct., 1844.)—"Mrs. Brant, ætat. 25, in the middle of August, 1843, for the first time, noticed a small tumour in the left hypogastric region, which had unceasingly continued to increase; it now occupies the whole lower part of the abdomen, and extends upwards to midway between the umbilicus and ensiform cartilage; it is very movable in a lateral and somewhat in a vertical direction; its surface feels hard and uneven as if lobulated.

"Upon examination the vagina and os uteri feel healthy; the direction of the vagina inclines to the left; pressure to the right of the neck of the uterus gives slight pain; here, through the vagina, the tumour can be felt. She complains of pains in the lumbar region, and down the thighs, at times resembling those of parturition. The urine is frequently and rather painfully voided. The bowels are inclined to be costive; in other respects, the various functions of the body are performed in a healthy manner.

"Her habit is spare, and has been so from the commencement of child bearing; she has borne four children."

Drs. Crookshank, Fuller and Harrison advised an operation, to which the patient assented.

On the 4th of August a dose of castor oil was given to the patient; and the next morning, in the presence and with the assistance of Drs. Fuller, Crook-

shank, and Francis, Dr. Bowles proceeded to operate upon the plan pursued by McDowell, Lizars, and Clay.

"The patient having her bladder and rectum evacuated, was laid on a table; her head resting on a pillow; her legs hanging over the end, and her feet resting on a chair.

"*Operation.*—Avoiding the umbilicus, an incision nine inches in length was made through the linea alba, from the upper part of the tumour to the symphysis pubis. Upon drawing aside the parietes, the tumour might be seen through the greater omentum, which passed down in front of it: upon endeavouring to raise it, it was found adherent to the tumour. The adhesions were readily separated by the handle of the scalpel or fingers. There were no adhesions on the posterior part. In endeavouring to raise it from the right iliac fossa, its attachment to the broad ligament of the uterus, which formed the pedicle, was brought into view; the pedicle was about two inches wide, its broad surface closely adhered to the tumour, its blood-vessels were large and distended; following its course for a short distance, the finger could be passed around it; here a ligature of double silk was applied, and firmly tied, and passed through the pedicle between the tumour and place of application; the broad ligament was then cut through. Endeavouring to raise it from the right iliac fossa, was found firmly bound down by adhesions to the uterus and bladder; the close adhesion of the tumour to the former gave to the hand, when examining it from behind, a sensation as if their structures were intimately blended into one consolidated mass, but as soon as the pedicle was divided, upon raising the tumour in front, the adhesions between it and the fundus of the bladder and uterus, were easily separated by the handle of the scalpel, and the tumour removed. We inclined her on one side, that the accumulated blood might escape, of which not more than six or eight ounces were lost, and not a jet of arterial blood was seen.

"Upon being replaced in her former position, vomiting occurred which forcibly protruded the intestines from the wound, and rendered it somewhat difficult to replace them, but Dr. Fuller by well directed pressure resisted the propulsive action, and stimuli being administered the vomiting subsided. The wound was then closed by an interrupted suture of five stitches. At distances of an inch and a half, long strips of adhesive plaster, reaching across the abdomen, were applied between the sutures; a long compress on each side of the wound; raw cotton over it; and a broad bandage surrounding the body, enveloped the whole.

"Since the operation she has gone on well, and has had nothing to complain of, excepting that on the remainder of the fifth and until the evening of the following day, her stomach would retain nothing; it yielded to an effervescent, or gruel. From that period she cannot be said to have had an untoward symptom. Her diet was the mildest that could be suggested; a dose or two of morphine has been the only medicine administered.

"To keep her abdominal muscles at rest, her urine was constantly drawn off by the catheter, and her bowels washed out by enemas; to prevent distension from flatulence a tube was kept in the rectum.

"Three of the sutures were removed on the 9th, one on the 10th, and the remaining one on the 11th.

"Adhesion has taken place (with the exception of an inch near the lower part) throughout the wound; the ligature is not yet come away. The urine and fæces are discharged without difficulty or assistance.

"Her appetite is good; her health better than before the operation. We have no doubt of her ultimate recovery.

"To Dr. Crookshank's kindness in taking her to his home, and the advantage she has derived from his constant attention, must be attributed in a great measure, the mildness of the subsequent disturbance which she has experienced from this formidable operation.

"The tumour weighed five lbs.; its external appearance resembled the human brain enveloped in the pia mater; upon dividing it, the interior appeared quite

solid, resembling the mammary gland, having a dense white appearance, agreeing with Dr. Good's definition of the emphyma mammarium. It measured in its shortest circumference fifteen inches, in its longest twenty-two and a half."

The adhesions and solidity of the tumour would have rendered its extraction totally impossible by the short incision. The propriety of operating in the linea alba was manifested by finding the pedicle to be the right broad ligament, instead of the left, as we expected from the history given by the patient.

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Rupture of the Spleen.—A robust man, about 40 years old, was engaged in a scuffle with another of the same size, and received one blow from the fist of his opponent, in the left hypochondriac region; the combatants then clenched each other, and so equal were their exertions for five or ten minutes, that it seemed doubtful which would come off victor; at length, however, the strength of J. W. seemed suddenly to fail. He turned pale, staggered and sunk helpless upon the ground, complaining of nausea, faintness and pain in the left side. He was carried, in a sinking condition, a short distance to a house, where he expired, in about fifteen minutes after the termination of the conflict.

On dissection, twenty-four hours after death, no marks of violence were observed on the exterior. The cavity of the pericardium contained about two ounces of effused serum. In other respects, the contents of the thorax appeared natural. But upon cutting through the abdominal parietes, exit was given to between two and three quarts of dark, partially coagulated blood. An extended incision brought into view the spleen, enlarged to about five times its natural dimensions, and so soft in texture as to be easily broken down under slight pressure from a finger. Upon its posterior surface, was a lacerated fissure of about five inches in length, extending deep into the centre of the organ. It was evidently from the divided blood-vessels of this torn structure, that internal hæmorrhage had taken place to such an extent as to cause immediate death.

The coroner's verdict was as follows:—"Death from lacerated diseased spleen, caused by a blow, fall or over-exertion, while engaged in a scuffle with B. R." B. R. was tried for manslaughter, and acquitted, by the Circuit Court.—*Dr. Herrick in Illinois Medical Journal.*

A case very similar, in its leading particulars, is given in this Journal, 1st series, vol. vii. p. 549, from Rust's Magazine. T. R. B.

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Fracture during Pregnancy.—Dr. H. C. Marthens relates, in the *St. Louis Medical and Surgical Journal*, (Oct., 1844,) a case of fracture of the radius in a woman 30 years of age, at the time in the seventh month of pregnancy. The fracture united firmly in one month, as short a period as union would have occurred under ordinary circumstances.

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Opium a Hazardous Remedy in Strangulated Hernia.—The following cases were related to the New York Medical and Surgical Society, with a view to show the danger of using opium or its preparations when strangulation of a hernia is suspected; the symptoms of strangulation being masked by the medicine, and the operation consequently being deferred until too late to be successful.

Dr. Buck stated that he was called to operate on a lady aged sixty, whose hernia (femoral) had been strangulated two days. She had been put under the influence of tobacco and an anodyne injection administered on the first day she was taken ill, which was Sunday. On Monday she was found in a state of profound narcotism. On Tuesday, Dr. Buck was called in. The patient then lay in a stupor, and did not appear to suffer. The hernial tumour was large, and its contents were omentum and intestine. The operation was performed the same day, and death ensued thirty-six hours thereafter. On examination, the strangulated portion of intestine was found of a purplish brown colour.

Dr. Watson reported as follows.—A lady, aged sixty-four, a rather small and spare woman, about six weeks before the present attack, was seized with

severe and sudden pain in the bowels, which was considered bilious colic. She was treated with very large and repeated doses of opium, which for the time overcame the pain. On Tuesday, May 28th, while busying herself about her household duties, she was again taken as before, and the former treatment resorted to. The amount of opium was very great, some ten or twelve grains per diem for several successive days. The pain was effectually overcome, and the only evidence of a narcotism produced, was a pleasant hallucination without sleep, and a tingling or itching sensation over the whole body. She continued under treatment in this way up to the evening of May 31, and, as a small swelling had recently been detected in the right groin, and her bowels had not been opened for nearly three days and a half, a consultation was requested. Dr. W. now saw her for the first time, about 9 or 10 o'clock at night, and recommended the operation. Some hesitancy existing, Dr. Mott also met the other attendants in consultation at midnight. The operation was resolved upon, and was performed by Dr. Watson. The hernia was femoral; no fluid existed in the sac.

The protrusion was small, and the parts united by adventitious adhesions, the result of inflammation, probably existing there since her first attack some six weeks before. On the next day the narcotic condition still existed, bowels still constipated, notwithstanding the use of oil and enemata. On June 2d, the bowels were freely and spontaneously moved for the first time. After this, all evidence of narcotism subsided, and the case began to promise well. The wound was dressed on the sixth day, and it was then dry, and appeared to have united by the first intention, but in a day or two afterwards it opened and gave issue to a very offensive discharge, which excoriated the surrounding parts. The whole of the pubic region and the right groin became inflamed, and the discharge for several days appeared to increase in quantity, and become more offensive. On the 8th June, a large slough was found lying under the integuments in the bottom of the wound, which was removed. Portions of fæces appeared on the dressings. The wound gradually contracted, and she continued under treatment until July 15, when a truss was applied.

Another instance was mentioned by Dr. Watson. The husband of a female aged sixty, objected to the performance of the operation on his wife, and in consequence it was deferred from hour to hour. Sixty drops of laudanum were given to allay irritation, and a consultation called. Croton oil was prescribed to relieve the bowels. At the next meeting the patient was so comfortable and free from pain that the operation was deferred until the next morning, when she was found moribund, being twenty-four hours from the occurrence of the strangulation.—*N. Y. Journ. of Med.*, Nov., 1844.

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Yellow Fever at Woodville, Miss.—Woodville, an inland town, in Wilkinson county, Mississippi, near the south-west corner of the State, with a population of about 750 inhabitants, suffered the past summer from a remarkable and very severe visitation of yellow fever.

The following extracts of a letter from a Medical Practitioner, to the editor of the *Western Lancet*, furnishes some curious details respecting this visitation:

"The town of Woodville is situated about twenty-eight miles from Bayou Sara, on the Mississippi; about forty from Natchez, and about fifteen or twenty from the Mississippi river. It is situated on high ground with a gradual slope in all directions, leading off into hollows that run up within a quarter or half mile of the town, forming the heads of Thompson's creek, the Buffalo and other little branches. There is no creek or ponds or low lands in the immediate vicinity. The town is built very compact, formed in a square, with the Court House in the centre. In short, when you view the surrounding country and the town, you would pronounce it to be one of the most eligible sites for a town of health in the South. I have walked around and through the place; every thing seemed neat and airy, no appearance of filth, no large collections to putrify and render the place unhealthy—no one would or could, in my estimation, pronounce Woodville a filthy place. And yet, strange to tell, we have been visited

with that desolating disease, *Yellow Fever*. And what renders the analysis more difficult, is the fact, that all the surrounding towns are remarkably healthy for the season of the year. The yellow fever does not prevail at New Orleans; there has been only one or two cases in the place, and they confined to the Hospitals. It does not prevail at Bayou Sara. There has not been a single case either at Bayou Sara or Natchez, or any place along the river; consequently you see the utter impossibility for the disease to have been brought here. We find no adequate cause existing in the place itself, for I have seen towns three times filthier, and more favourably situated for such a disease, and yet escape. * * * I have heard it remarked since the prevalence of the epidemic, that even the birds have left Woodville and its precincts, not one is to be seen in or about the town; usually there are a great many. We have had no rain of any consequence for weeks, and it has been quite warm, but not more so than any other season. * * * I presume no one will doubt the fact of its being genuine *yellow-fever* when they are informed that physicians who have practised in New Orleans for years and have seen hundreds of cases, perhaps thousands, unhesitatingly and unequivocally pronounce it the yellow fever. Nearly every man in the place has had the disease. But what fatality for such a small inland town, the disease has been prevailing a week up to this time, and from seven to ten deaths have occurred every day, and Heaven only knows when it will cease its desolations. It is very rapid in its course, the victims are seized with a violent pain in the head, pains in the lumbar portion of the spine, in the knees, accompanied with a burning fever; in a short time they commence vomiting, throwing up something similar to coffee grounds, called the black vomit, and in a few hours death closes the scene; there is a great similarity in the attacks; after death they turn yellow, this I have seen with my own eyes. Another very remarkable thing, it is spreading into the country; on some of the plantations there are fifty cases, and others occurring. From some of the plantations they had occasion to send to town, and invariably the servant has returned with the disease, although he remained but a few minutes in town, and, in this way, they have carried it into the country. Nearly every individual that visits Woodville after returning home, in a few hours is taken sick, and the majority of them die. I have not been informed of the exact amount of deaths as yet; the epidemic is rapidly prevailing."

Drs. C. De Valetti and Thomas M. Logan, a committee of the Medico-Chirurgical Society, delegated to investigate the nature and origin of this outbreak of yellow fever, furnish, in their report, some farther particulars, the most important of which we shall quote. The report is published in the *New Orleans Medical Journal* for Oct., 1844.

"Woodville," says the committee, "is an inland town, situated in Wilkinson county, near the south-west corner of the State of Mississippi, lat. 31° 10′, and 8 miles from the boundary line of Louisiana. The distance in a direct line from the Mississippi river, which is the nearest river or swamp, is 15 miles, but as the whole surrounding country is rolling and much broken, the route by railroad or stage is about 26 miles. The town is elevated to the height of 340 feet above the bank of the Mississippi river, as has been well ascertained by the engineers who constructed the railroad from Bayou Sara and St. Francisville, which terminates here. The town covers a space of about 8 or 10 acres: the houses are not crowded together,—the streets are wide and planted with trees, and there is a large public square in the centre. The population has increased very gradually since the first settlement of the town, about 40 years ago. No sudden emigration of any consequence has ever been observed previously to the last 3 years, during which period some Dutch emigrants have located themselves here; but the number is inconsiderable. The soil of the town and adjoining country is rather worn, and consists of a mixture of clay and sand to the depth of about 15 feet, where a thick stratum of gravel next presents, through which numerous springs of clear, wholesome and pleasant water are occasionally found percolating.

"The sand rather predominates in the bottoms and low spots, for the water

which collects occasionally here and forms ponds remains perfectly sweet and transparent until dried up.

"The productions of the country are chiefly cotton and corn, and the natural growth beech, magnolia, pine, &c.

"The inhabitants of Woodville and the surrounding country have always enjoyed a great degree of health, seldom interrupted except by an occasional and partial prevalence of the usual autumnal fevers, to which our whole southern alluvial country is more or less subject.

"The past summer has been uncommonly hot: the thermometer being seldom below 80°, and frequently up to 100°. The whole month of June was rainy, but since, little or no rain has fallen, and the country is suffering from the want of water. The atmosphere, generally pure and dry, was so highly charged with electricity about the beginning of September, and the lightning at one time flashed so incessantly and vividly, as to create ominous apprehensions among many.

"The prevalence of the winds has been from N. N. West, and the nights have not been uncommonly cool."

This committee bear testimony to the disease being genuine yellow fever.

"Previous to the present year," we continue to quote from the report of the committee, "yellow fever never prevailed at Woodville. About 5 or 6 years ago, however, an individual, flying from the epidemic, which reigned at Bayou Sara, went to Woodville, where he soon fell sick and died with black vomit. Neither before nor since, until the present time, has the disease ever been heard of there."

The first case which occurred was "a negro man, who had been residing in the country a number of years, and who had been taken sick at his master's plantation, about 6 miles from town. The patient died. This death," observe the committee, "it will be borne in mind, happened on a plantation 6 miles from town, and it is worthy of note that no other case occurred here, with the exception of a slight fever about three weeks after, in another negro, who had never been near the first, and who soon recovered after a purgative of calomel, without quinine.

"The next case occurred in the town on the 11th August, in the person of Mr. Simrall. This gentleman was a Kentuckian by birth, and had been residing at Woodville about 3 years. His occupation was that of a merchant, and it is not remembered that he had recently received any merchandise from New Orleans, or been absent from the town since his removal there. He was attacked with the most unequivocal symptoms of yellow fever, which readily yielded to the free use of the lancet and calomel. After this he was put on the quinine treatment, which disagreed much with him, and rendered his convalescence tedious.

"After this case the disease began to spread as an epidemic, very generally."

We trust that a full account of this epidemic will be drawn up by one of the medical practitioners of the place.

Colon Strangulated by the Meso-Colon.—Dr. Gilman Davis, of Portland, Me., relates in the *Boston Medical and Surgical Journal*, (Dec. 11th, 1844,) an interesting case in which fatal strangulation of the colon in an aperture in the meso-colon occurred. The subject of the case was a gentleman, twenty-six years of age, who was attacked on the 13th Oct., 1843, with paroxysms of pain in the epigastric region, without tenderness; but with remarkable tonic rigidity of the abdominal muscles, and constipation. By the use of cathartics, enemata and opiates, after three days suffering, evacuations were produced from the bowels and the other symptoms then yielded.

The patient, except being troubled with constipation enjoyed moderate health after this until the 5th May, 1844, when he experienced an attack similar to the first. There was superadded to the previous symptoms, constant vomiting, every thing swallowed was instantly rejected. There was no thirst; the firmest pressure on the abdomen caused no pain; there was extreme restlessness and

nervous agitation, and the patient complained that there was a stoppage in the epigastric region, and said he should feel better if he could only have an evacuation from his bowels. Various remedies were employed without, however, the least benefit; the patient got worse and worse, and died midday, May 9th.

On *post mortem* examination a large knuckle of intestine of a deep port wine colour, composed of thirteen inches of the colon, was found strangulated in an aperture about the size of a quarter of a dollar in the meso-colon. From the strangulated intestine to its termination in the anus, measured four feet. The strangulated intestine was in a complete state of mortification. The aperture was round with even edges. No reasonable conjecture could be formed as to the cause of its formation.

—

Discharge of a Lumbricus from the Male Urethra.—Dr. PETER F. CLARK, has recorded in the *New York Journal of Medicine*, (May, 1844,) a case in which a lumbricus teres eleven inches long was discharged from the urethra of a man thirty-three years of age. Dr. C. thinks that eighteen months previously, at which time the patient laboured under symptoms of disease of the bladder, a communication was formed by ulceration between that organ and a contiguous surface of intestine, through which the worm had passed from the latter into the former organ.

The facts related by Mondiere (see p. 207 of this No.) suggest a more plausible explanation of this occurrence.

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Dr. M'Dowell's Cases of Extirpation of Diseased Ovaria.—The operations of Dr. EPHRAIM M'DOWELL, of Danville, Ky., for extirpation of diseased ovaria, having been so frequently quoted of late, and often incorrectly; and the journal in which they were originally published ("The Eclectic Repertory") being inaccessible to the profession generally, we have thought that we should do a service by republishing them.

Dr. M'Dowell's first paper, containing the account of his three first operations, was published in the Eclectic Repertory for April, 1817; and his second paper, containing an account of two subsequent operations, was published in the same journal for October, 1819.

CASE I.—"In December, 1809, I was called to see a Mrs. Crawford, who had for several months thought herself pregnant. She was affected with pains similar to labour pains, from which she could find no relief. So strong was the presumption of her being in the last stage of pregnancy, that two physicians, who were consulted in her case, requested my aid in delivering her. The abdomen was considerably enlarged, and had the appearance of pregnancy, though the inclination of the tumour was to one side, admitting of an easy removal to the other. Upon examination, per vaginam, I found nothing in the uterus; which induced the conclusion that it must be an enlarged ovarium. Having never seen so large a substance extracted, nor heard of an attempt, or success attending any operation, such as this required, I gave to the unhappy woman information of her dangerous situation. She appeared willing to undergo an experiment, which I promised to perform if she would come to Danville, (the town where I live,) a distance of sixty miles from her place of residence. This appeared almost impracticable by any, even the most favourable conveyance, though she performed the journey in a few days on horseback. With the assistance of my nephew and colleague, James M'Dowell, M. D., I commenced the operation, which was concluded as follows: Having placed her on a table of the ordinary height, on her back, and removed all her dressing which might in any way impede the operation, I made an incision about three inches from the musculus rectus abdominis, on the left side, continuing the same nine inches in length, parallel with the fibres of the above-named muscle, extending into the cavity of the abdomen, the parietes of which were a good deal contused, which we ascribed to the resting of the tumour on the horn of the saddle during her journey. The tumour then appeared full in view, but was so large that we could not take it away entire. We put a strong ligature

around the Fallopian tube near to the uterus; we then cut open the tumour, which was the ovarium and fimbrious part of the Fallopian tube very much enlarged. We took out fifteen pounds of a dirty, gelatinous looking substance. After which we cut through the Fallopian tube, and extracted the sack, which weighed seven pounds and one half. As soon as the external opening was made, the intestines rushed out upon the table; and so completely was the abdomen filled by the tumour, that they could not be replaced during the operation, which was terminated in about twenty-five minutes. We then turned her upon her left side, so as to permit the blood to escape; after which, we closed the external opening with the interrupted suture, leaving out, at the lower end of the incision, the ligature which surrounded the Fallopian tube. Between every two stitches we put a strip of adhesive plaster, which, by keeping the parts in contact, hastened the healing of the incision. We then applied the usual dressings, put her to bed, and prescribed a strict observance of the antiphlogistic regimen. In five days I visited her, and, much to my astonishment, found her engaged in making up her bed. I gave her particular caution for the future; and in 25 days, she returned home as she came, in good health, which she continues to enjoy."

Case II.—"I was called to a negro woman, who had a hard and very painful tumour in the abdomen. I gave her mercury for three or four months with some abatement of pain; but she was still unable to perform her usual duties. As the tumour was fixed and immovable, I did not advise an operation; though from the earnest solicitation of her master, and her own distressful condition, I agreed to the experiment. I had her placed upon a table, laid her side open as in the above case; put my hand in, found the ovarium very much enlarged, painful to the touch, and firmly adhering to the vesica urinaria and fundus uteri. To extract I thought would be instantly fatal; but by way of experiment I plunged the scalpal into the diseased part. Such gelatinous substance as in the above case, with a profusion of blood, rushed to the external opening, and I conveyed it off by placing my hand under the tumour, and suffering the discharge to take place over it. Notwithstanding my great care, a quart or more of blood escaped into the abdomen. After the hæmorrhage ceased, I took out, as clearly as possible, the blood, in which the bowels were completely enveloped. Though I considered the case as nearly hopeless, I advised the same dressings and the same regimen, as in the above case. She has entirely recovered from all pain, and pursues her ordinary occupation."

In his second paper, Dr. M'Dowell states, that he thought this patient well of her disease: "but she informed me a short time since, that it had been growing for the last 12 or 18 months, and says it is now about the size it was when I opened her six years ago."

Case III.—"In May, 1816, a negro woman was brought to me from a distance. I found the ovarium much enlarged, and, as it could be easily moved from side to side, I advised the extraction of it. As it adhered to the left side, I changed my place of opening to the linea alba. I began the incision, in company with my partner and colleague, Dr. William Coffer, an inch below the umbilicus, and extended it to within an inch of the os pubis. I then put a ligature around the Fallopian tube and endeavoured to turn out the tumour, but could not. I then cut to the right of the umbilicus, and above it two inches, turned out a scirrhous ovarium, (weighing six pounds,) and cut it off close to the ligature put round the Fallopian tube. I then closed the external opening, as in the former cases; and she complaining of cold and chilliness, I put her to bed prior to dressing her—then gave her a wineglassful of cherry-bounce and thirty drops of laudanum, which soon restoring her warmth, she was dressed as usual. She was well in two weeks, though the ligature could not be released for five weeks; at the end of which time the cord was taken away; and she now, without complaint, officiates in the laborious occupation of cook to a large family."

Case IV. "In April, 1817, I operated on a negro woman from Garard county; extracting a scirrhous ovarium, weighing five pounds. The incision was made

near the linea alba; as in cases formerly related, I tied a cord firmly round the ligament, attaching it to the uterus, and cut away the ovarium; but owing to the shortness and sponginess of the part, the cord slipped off before I laid the ovarium out of my hands, and a profuse discharge of blood took place. I immediately drew the uterus to the external incision, and commenced tying up the bleeding mouths separately. This also, in consequence of the diseased state of the parts, proved only of partial efficacy, as several of the ligatures cut through on tying them. I now thought it all over with my poor patient, but arming a needle with a strong ligature, I passed it round the ligament; securing it in its place by taking several stitches over its surface as I passed it round, and firmly tied it. By turning her nearly on her stomach I was able to get most of the blood out of the abdomen, using my hand to extract the coagulated portion. The incision was then closed by the interrupted suture, and strips of adhesive plaster. She recovered happily; but I am told her health is not good; the account I had of her was awkwardly given; from what I could learn her complaint is hysterical. This, though the smallest ovarium I have ever extracted, was much more troublesome to the patient than in any previous case. Besides experiencing severe lancinating pains in the parts, she was seldom able to discharge her urine, without getting almost on her head, in consequence of the tumour falling down into the pelvis, and compressing the urethra."

Case V. "A negro woman, from Lincoln county, was brought to me in April, 1818, supposed, by the different physicians who had attended her, to be affected with ascites; she had been under their care about eighteen months. On examining her I could very plainly discover the fluctuation of fluid in the abdomen, and for some months administered medicines for ascites without effect; despairing of the power of medicines, I at length tapped her, and discharged thirteen quarts of gelatinous fluid, such as I had before met with in dropsical ovaria, of so thick a consistence that I found it extremely difficult and tedious to discharge it. In two months after I found it necessary to tap again; during the process of discharging it a second time, the opening was frequently stopped by viscid portions of the jelly, which were broken by introducing a probe; when the abdomen was pretty well evacuated, I discovered, with the probe, a firm substance, which, on minute examination, I found to be of considerable size. I at once supposed the existence of a dropsical ovarium, in which I was confirmed on finding the uterus empty by examination per vaginam. Some months after she was again tapped, at which time I made the opening large enough to admit my finger; by which means I was able to ascertain the nature of the disease beyond a doubt. I informed her master what was certainly her situation, and that nothing but excision could effect a cure. My advice was not immediately followed, nor until after she was tapped a fourth time; a week or two after which she was brought to Danville to undergo the operation, which was performed May 11, 1819. The diseased ovarium being on the left side, and evidently dropsical, the incision was of course made on the left side. On exposing the tumour, it was found to adhere to the parietes of the abdomen, and to the intestines, by slender cords which were easily separated with the hand, and which caused a slight effusion of blood. To the uterus two strong ligaments adhered; one, the natural ligament, attaching the ovarium to the uterus, the other, an artificial one, attached to the fundus uteri, which appeared to be composed of the above-mentioned slender cords, compacted together. I then tied fine cords of silk firmly round each of these ligaments, discharged the contents of the tumour, and cut it away.

"There were sixteen quarts of gelatinous fluid discharged from the tumour and abdomen. The dressings and precautions were the same as in other cases. The second day after the operation she was affected with violent pain in the abdomen, together with an obstinate vomiting. She was blooded as copiously as her strength would allow, but without producing any abatement of the pain or vomiting. On the third day she died. On examination after death, the uterus, contrary to expectation, appeared natural and uninflamed, the right ovarium healthy, the silken cords were securely and properly fixed, and not in a situa-

JEFFERSON MEDICAL COLLEGE

tion likely to injure the adjoining parts. Her death had proceeded from peritoneal inflammation. This membrane, throughout its whole extent, appeared greatly inflamed, and the intestines largely inflated.

"I was assisted in this operation by my nephew, Dr. William A. M'Dowell. Doctors Weizegar, Tomlinson, and Horr were present.

"On examining the substances we had removed the contents of the sac presented a variety; different portions of the fluid were of different colours—semi-transparent, white, brown and yellow. There was also contained in the sac a considerable quantity of hair, which grew from the inner surface. Enveloped in the inner substances of the sac we found a bone, resembling very much in shape the front tooth of a cow.

"From the circumstance of the hair and bone one or two of the physicians present were inclined to believe the disease originated from an extra uterine conception, and that all of the fœtus had been absorbed, save the hair and single bone which was found. This question I submit to the faculty."

—

New Works.—Messrs. Lea & Blanchard have just published Sir Astley Cooper's treatises on the structure and diseases of the Testis, and on the structure and diseases of the Thymus Gland; Taylor's Medical Jurisprudence, with notes and additions by Dr. R. E. Griffith; and a treatise on the Diseases of the Respiratory Organs, by C. J. B. Williams, with notes and additions by Dr. Clymer.

The same publishing house have in press, and will shortly publish, Esquirol on Mental Maladies, translated with additions by Dr. E. K. Hunt; Ashwell on the Diseases of Females, with notes by Dr. Goddard; Miller's Principles of Surgery; and Brigham on the influence of mental cultivation and mental excitement upon health.

—

Obituary Record.—It is with deep regret that we record the death of Dr. Samuel Forry, which took place in the city of New York on the 9th of November last.

Dr. Forry was well known to the readers of this Journal by his his numerous valuable contributions. For the last two years he edited with ability and success the New York Journal of Medicine, besides furnishing many articles to other periodicals; and during the same period he prepared several interesting and useful volumes.

Dr. Forry's constitution, naturally feeble, broke down under his arduous literary labours. He was attacked with a cerebral affection, which closed his career at the early age of 33.

JEFFERSON MEDICAL COLLEGE
OF PHILADELPHIA.

At a Public Commencement, held on the 20th of March, 1845, the Degree of Doctor of Medicine was conferred on the following gentlemen, by the Rev. ASHBEL GREEN, D D., LL. D., President of the College; after which a Valedictory Address was delivered by Professor MEIGS.

	Subject of Thesis.
Maine.	
Charles B. Cates,	Typhoid Fever.
New Hampshire.	
Hezekiah C. Bickford,	Hernia.
Massachusetts.	
Edward C. Dyer,	Scrofula.
Charles L. Knowlton,	Vitality of the Blood.
Connecticut.	
Edwin N. Chapman,	Menstruation.
Henry L. Whitman,	Bearing of Mental Phenomena on Therapeutical Indications.
New York.	
Alexander Henry Hoff,	Operation for Enlarged Tonsils.
Charles Martin,	Rheumatism.
Edwin R. Maxon,	Granular Disease of the Kidney.
Samuel O. Van Despoel,	Revellents.
New Jersey.	
Benjamin H. Deacon,	Digestive Organs and their Functions.
Charles R. Foster,	Intermittent Fever.
Job Haines,	Refrigerants.
Richard M. Pancoast,	Scarlatina.
Charles Ridgway,	Gonorrhœa.
Jonathan S. Whittaker,	Puerperal Fever.
Pennsylvania.	
James P. Andrews,	Pneumonia.
James Bond,	Bi-borate of Soda.
Alexander H. Carpenter,	Uterine Hæmorrhage.
Nathan H. Clark,	Dysentery.
John M. Coon,	Dysentery.
Francis A. Crawford,	Bilious Remittent Fever.
John M. Dunlap,	Scarlatina Maligna.
John B. Dyott,	Typhus Fever.
John F. Evans,	Drunkenness.
Joseph Gibbons,	Nature and Seat of Lesion in Fever.
Thomas Gordon,	Calorification.
Noah E. Hackedorn,	Endemico-Epidemic Dysentery.
H. Percival Hottenstein,	Ergota.
Joseph H. Lefevre,	Hydrargyri Chloridum Mite.
Caleb Liggett,	Bronchocele.
Abraham Livezey,	Nicotiana Tabacum.
John Martin,	Amenorrhœa.
Henry S. Mellinger,	Puerperal Convulsions.
James McConaughy,	Laryngo-Tracheitis.
Elias Hale McMullin,	Acute Hepatitis.
Matthew Miller,	Acute Gastritis.
John W. Rawlins,	Diagnosis.
Henry Roberts,	Granular Degeneration of the Kidney.
William J. Romig,	Insanity.
John Henry Rothrock,	Scarlatina.
Benjamin C. Snowden,	On the Causes which impede the Progress of Medicine.
Edward R. Squibb,	Tetanus.
Miller Stewart,	Intermittent Fever.
Alex. Thomson, Jr.,	Medico-Legal View of Insanity.
George Henry Waters,	Ovarian Dropsy.
Charles Wilson,	Vis Medicatrix Naturæ.
Ellwood Wilson,	Lobelia Inflata.
Samuel P. Ziegler,	Gum Ammoniac.
Maryland.	
Oliver B. Knode,	Scarlatina.
Virginia.	
William W. Arbuckle,	Intermittent Fever.
George S. Bryant,	Gonorrhœa.
Nathaniel E. Cargill,	Manià-a-Potu.
Alexander Cunningham,	Mucous Membranes.
James B. Dunkum,	Effects and Modus Operandi of Iodine.
William T. Fleet,	Causes and Symptoms of Fall Fever in Eastern Virginia.
Abner Joseph Grigsby,	Oxygen.
Richard N. Hall,	Menstruation Physiologically Explained.
George F. Harris,	Sensation.
Alexander Jones,	Menstruation.
Edwin B. Jones,	Diagnosis of Typhus Fever.
John F. Kurtz,	Diagnosis of Typhoid Fever.
Philip B. Pendleton,	Catamenial Discharge.
Michael B. Poitiaux,	Diseases of the Pancreas.
R. Henry Power,	Opium.
William P. Rogers,	Diagnosis of Typhoid Fever.
Bushrod Rust,	Erysipelas.
Samuel P. Semple,	General Pathology of Dropsy.
Thomas W. Smith,	Pleurisy.
William B. Young,	Encymosia.
North Carolina.	
William A. Boyd,	Sounds of the Heart.
William Henry Hill,	Puerperal Fever.
Joseph B. Mann,	Belladonna.
Nereus Mendenhall,	Intermittent Fever.
John C. Williams,	Typhus Fever.
South Carolina.	
William H. Pearce,	Urethritis.
John H. Vandever,	Cholera Infantum.
George Young,	Insanity.
Georgia.	
Henry R. Branham,	Peculiarities of the Female Pelvis.
Edward L. Cary,	Remittent Fever.
George F. Cooper,	Retrospect of Medicine.
Thomas A. Graves,	Acute Hepatitis.
William P. Harden,	Enteritis.
John H. Harwell,	Intermittent Fever.
Samuel G. White,	Physical Examination of the Chest.
Tennessee.	
Anthony L. Pillow.	Epidemic Erysipelas.
James L. Thompson,	Vesico-vaginal Fistula.
Alabama.	
Robert O. Bealle,	Fractures.
Benj. F. Blackmon,	Acute Inflammation of the Synovial Membranes.
William K. Brown,	Pathology of the Blood.
Benjamin L. Landrum,	Apocynum Cannabinum.
Louisiana.	
Draughon, John B.,	Anæmia.
Mississippi.	
James B. Ellis,	Intermittent Fever of the South.
John Edwin Hill,	Tartar Emetic.
George M. Moseley,	Bilious Remittent Fever.
John M. Ruffin,	Flooding.
Henry Whiting,	Scarlet Fever.
Kentucky.	
Alexander M. Blanton,	Pneumonia.
Benjamin Hensley, Jr.,	Pleuritis.
George W. Hughes,	Menstruation.
Armistead R. Mott,	Menstruation.
Gustavus B. Tyler,	Normal Weights of the Human Viscera.
John G. Wall,	Surgery.
Ohio.	
Thos. Jefferson Hazlett,	Differential Diagnosis of Typhoid and Typhus Fever.
J. Miller Junkin,	Dysentery.
Jenkin W. Morris,	Rubeola.
Thomas R Potter,	Pertussis.
James Silvey,	Concussion of the Brain.
Francis A. Worthington,	Physiological Function and Uses of Menstruation.
Canada West.	
Thos. McKee Ferguson,	Pleurisy.
Nova Scotia.	
George Edward Outhit.	Cyesis.
Uruguay.	
Juan Carlos Neves,	Sobre la Catarata.
Scotland.	
Laurence Turnbull,	Arsenic as a Poison.

William V. Snyder, M. D., of Indiana, and Alfred Hitchcock, M. D., of Massachusetts, were admitted to the ad eundem Degree of Doctor of Medicine in this Institution; and the Honorary Degree of Doctor of Medicine was conferred on Dr. Solomon G. Birch, of Pennsylvania. TOTAL 116.

The examination of candidates for Graduation commences on the first of March.
The Commencement for conferring Degrees, is held in the middle or the latter part of the same month.
There is likewise an examination of candidates for Graduation, commencing on the first of July. The Degrees are conferred on the candidates who are successful at this examination, at the annual commencement following."

R. M. HUSTON, M. D., *Dean of the Faculty.*

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TO SUBSCRIBERS.

The Publishers would call the attention of subscribers to the American Journal to the necessity of remitting for this year, now that it can be done through the postmasters free of charge.

The new Post Office Law will go into effect on the 1st of July next, after which the postage on all remittances should be paid by the subscribers. If the letter does not weigh over half an ounce, the postage will be 5 cents for 300 miles or less and 10 cents for over 300 miles.

The weight of each number of this Journal is about 13 ounces. This will make the postage under the new law 14½ cents for any distance. This is a considerable reduction on the present charges, and the publishers trust that the lessening of its cost will present an inducement to many persons to become subscribers who have heretofore withheld their names.

APRIL 1st, 1845.

THE EXPLORING EXPEDITION.

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As the history of the only Expedition yet commissioned by our Government to explore foreign countries, this work must present features of unusual interest to every American. Much curiosity has been excited respecting this enterprise, from the length of time during which it was in preparation, and from the various conflicting reports which were circulated during its protracted absence.

The Publishers would call the attention of the public to some of the important points of the Voyage, the results of which cannot fail to prove advantageous to the commerce and character of this country.

The Squadron—six vessels—sailed from Norfolk in August, 1838, and after making important observations on the voyage, via Madeira, arrived at Rio, when their investigations were successfully prosecuted. Sailing thence for Cape Horn, they examined the commercial capabilities of Rio Negro. Arriving at Cape Horn, two of the vessels were despatched to investigate Palmer's Land, and other Antarctic Regions; whence, after encountering great danger, they returned safely, and sailed with the whole Squadron for Valparaiso and Callao. After making important observations on the West Coast of South America, regarding the commerce, political history, &c., of that portion of America, they sailed for Sydney, cruising among the numerous groups of islands of the Pacific Archipelago, where the results were peculiarly important, as connected with the commerce and Whale Fishery of our country, as well as the aid they were able to bring to the various missionary establishments engaged in the introduction of Christianity and civilization. After remaining some time at Sydney, pursuing important investigations, they sailed for the Antarctic Regions, leaving behind them the corps of Naturalists to explore that singular country, the observations on which will be found of great interest. The Squadron then proceeding South, made the brilliant discovery of the ANTARCTIC CONTINENT, on the 19th January, 1840, in 160° east longitude, along which they coasted, in a westerly direction, to 95° east, a distance of 1500 miles. On the return of the vessels, they touched at New Zealand, when the Naturalists were again taken on board. They next proceeded to the Friendly Islands of Cook, the Feejee Group, and reached the Sandwich Islands late in the fall, which precluded them from going to the North-West Coast that season. The Paumotu, Samoan, and King's Mills group of islands were visited, and a particular examination made of the Island of Hawaii, its interesting craters and volcanic eruptions. In the spring, the Squadron proceeded to the Oregon Territory, now exciting so much interest in a political point of view; it was thoroughly examined in regard to its commercial and agricultural prospects, &c. Here the Peacock was lost on the dangerous bar of the Columbia river. After the Oregon, Upper California was examined. The Expedition now returned to the Sandwich Islands, and thence sailed for Manilla and Singapore, touching at the Phillipine Islands, and passing through the Sooloo Sea, the channels of which being correctly ascertained, will greatly benefit the important navigation to China.

Touching at the Cape of Good Hope and Rio, this important and successful Exploring Expedition finally, on the 10th of June, 1842, arrived at New York, after an absence of three years and ten months.

During the whole Voyage, every opportunity was taken to procure information, investigate unknown or little frequented parts of those seas now reached by our commerce, and thoroughly to institute scientific investigations of all kinds. To illustrate these, a vast number of drawings and maps have been executed; but the chief objects in view were of a practical nature. Numerous regulations have been made with the rulers of various islands, to secure the safety of our commerce, now daily increasing in those seas. In short, every thing has been done which lay in the power of officers or men to make the Expedition redound to the interest and honour of the Country; and in the volumes to be issued will be found its history and embodiment.